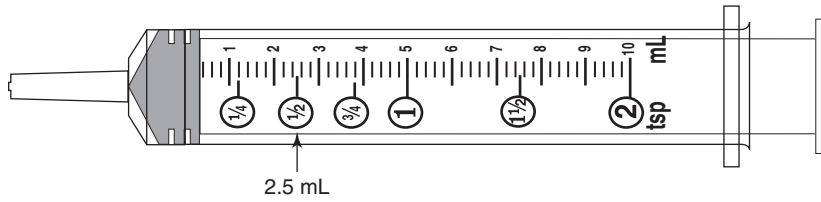


Essential Skills Evaluation: Pretest and Posttest from pages 4–20

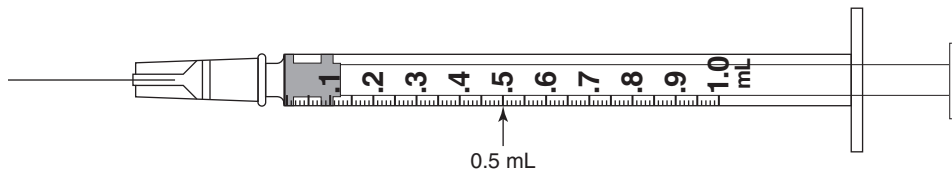
<https://sellbox.com/products/solution-manual-dosage-calculations-9e-pickar>

- 1) $\frac{1}{2}$; 3 times a day 2) 3; 2 times a day 3) 10; 2; once a day 4) $\frac{1}{2}$; every 3 hours as needed for moderate pain
5) 2; once every morning 6) 2.5; every 8 hours



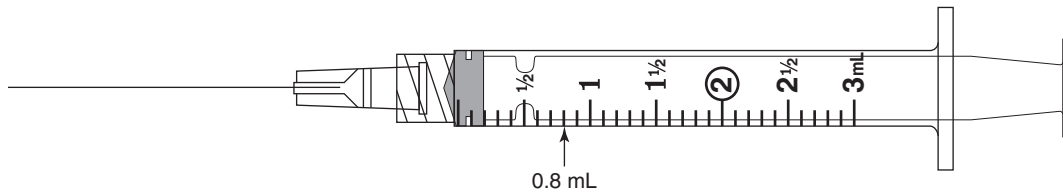
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- 7) 0.5; every 4 hours as needed for nausea



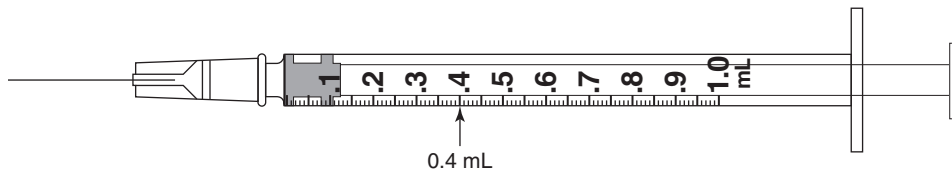
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- 8) 0.8; once, immediately



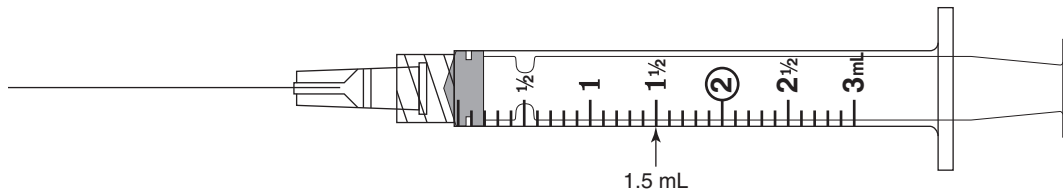
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- 9) 0.4; every 4 hours as needed for severe pain



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- 10) 1.5; once, immediately



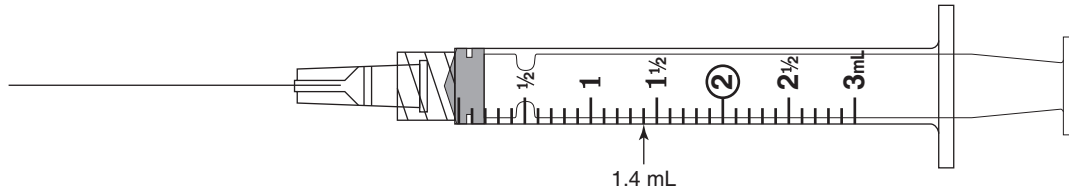
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2

Essential Skills Evaluation — Pages 4–20

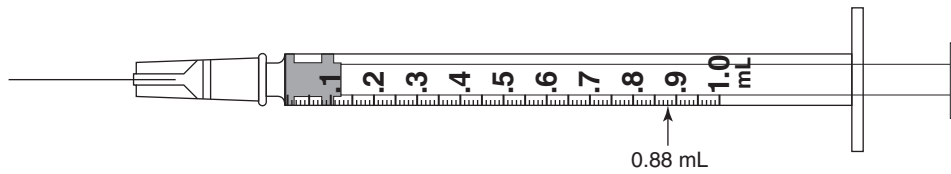
ANSWERS

- 11) 1.4; every 8 hours



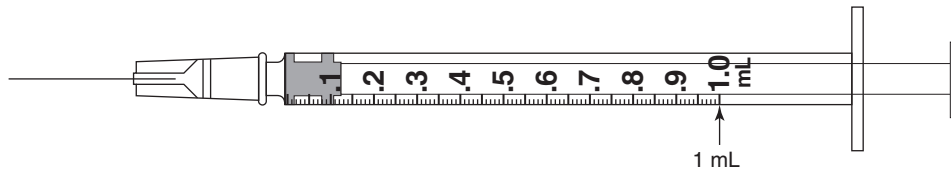
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- 12) 0.88; once, immediately

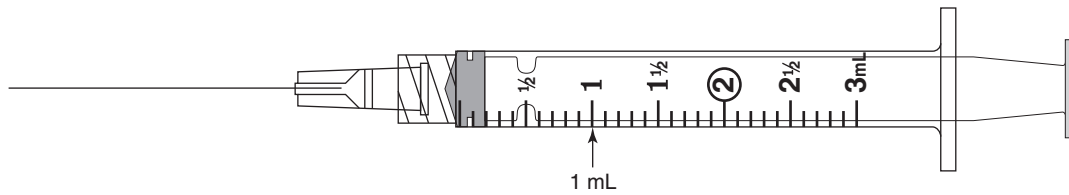


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- 13) 1; once, immediately; either syringe is appropriate

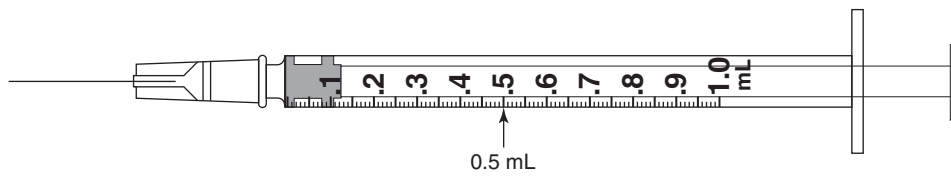


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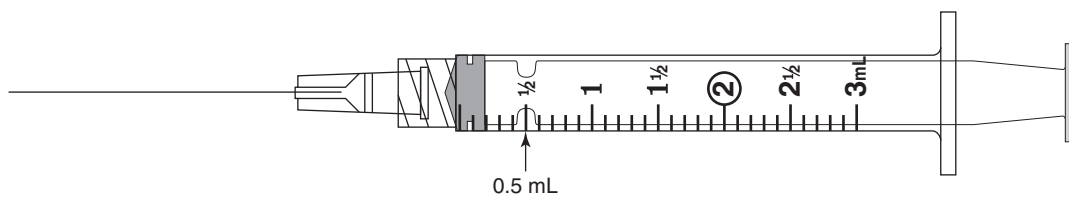


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- 14) 0.5; once, every morning; either syringe is appropriate

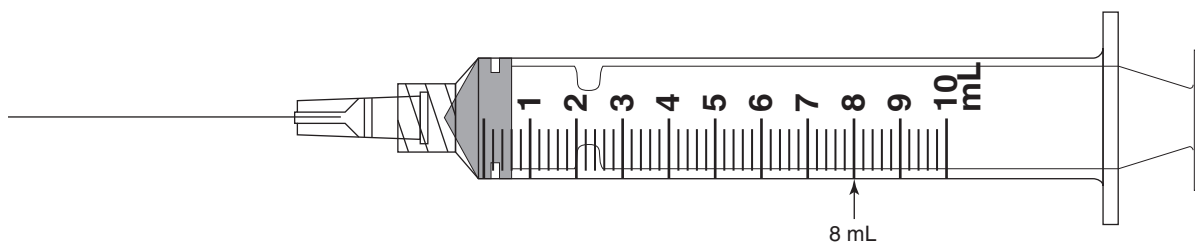


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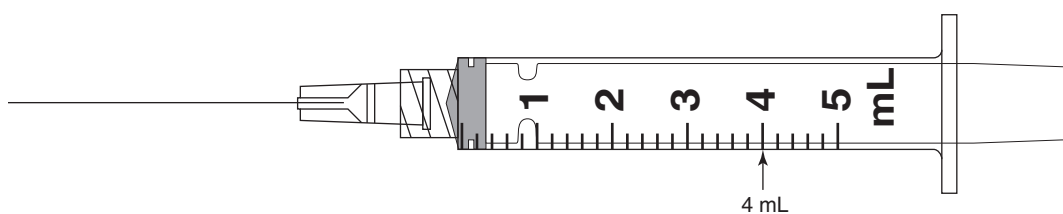
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- 15) 8; every 12 hours



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- 16) 4; every 12 hours



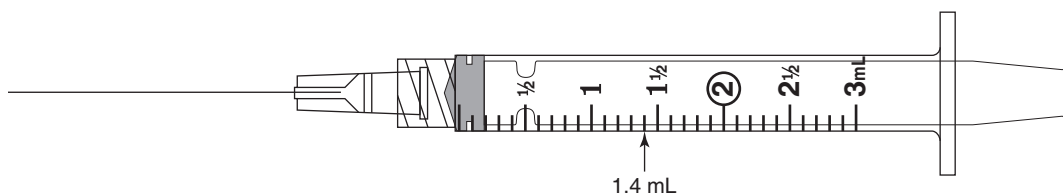
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- 17) 1; 1; 0.25; every 8 hours



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- 18) 1.4; 75; every 6 hours



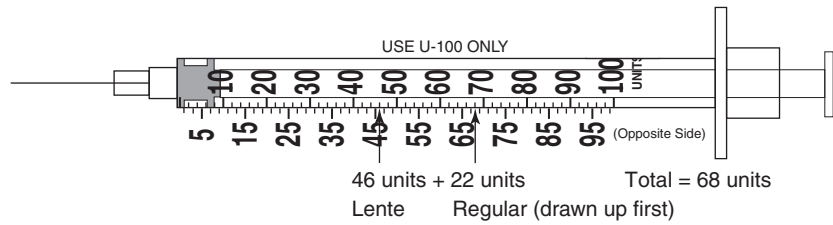
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4

Essential Skills Evaluation — Pages 4–20

ANSWERS

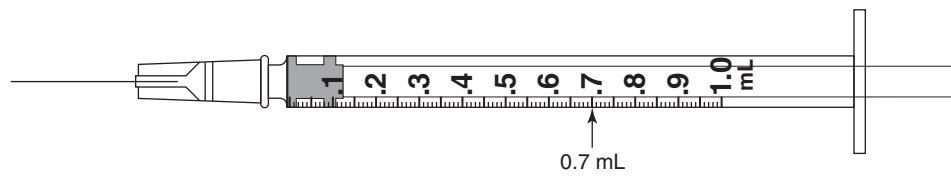
- 19) 68; once a day before breakfast



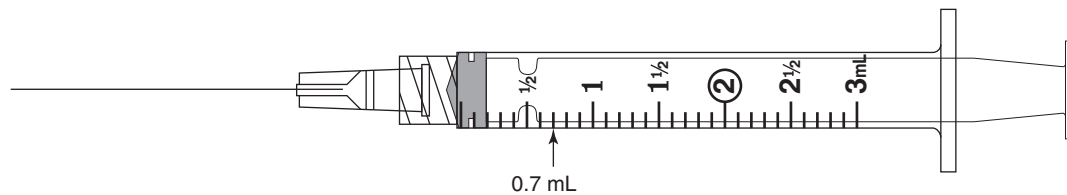
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- 20) 1

- 21) Benadryl; 0.7; either syringe is appropriate

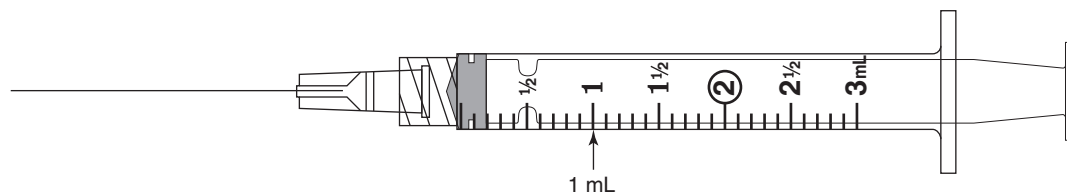


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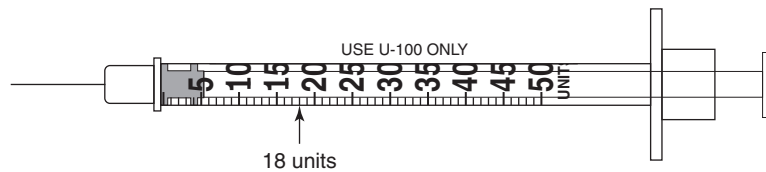
- 22) Narcan; 1



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- 23) Yes. Her temperature is 102.2°F. Tylenol every 4 hours as needed is indicated for fever greater than 101°F. It has been 5 hours and 5 minutes since her last dose. 24) 2 25) 18.8; 138 26) 138 27) 8; 2 28) 1; 0700; 1200; 1700

- 29) 18; subcutaneous

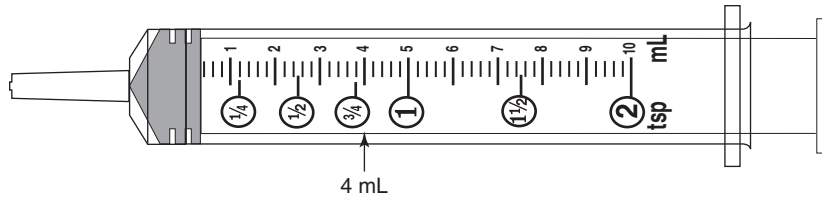


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- 30) 113

- 31) Yes; the usual dosage is 20–40 mg/kg/day divided into 3 doses q.8h, which is equivalent to 67–133 mg per dose for a 22 lb (10 kg) child.

32) 4



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33) Yes; the usual dosage is 40 mg/kg/day divided into 3 doses q.8h, which is equivalent to 240 mg per dose for a 40 lb (approx. 18 kg) child.

34) 3; dosage is safe 35) 103.3 36) 282; 423 37) 9.4 38) 250–375; Yes 39) 1.7; 26 40) 880 41) 25 42) 1 43) 5; 5 44) 50

45) 0030; 12:30 AM the next day 46) 10 47) 100; 1 48) 5

49) **1/30/xx, 1500, reconstituted
as 100 mg/mL. Expires
1/31/xx, 1500. G.D.P.**

50) **Prevention:** The importance of checking a medication label at least three times to verify supply dosage cannot be overemphasized. It is also important NEVER to assume that the supply dosage is the same as a supply dosage used to calculate previously. Always read the label carefully. Writing the calculation down will also help improve accuracy.

Solutions—Essential Skills Evaluation: Pretest and Posttest

$$1) \frac{D}{H} \times Q = \frac{40 \text{ mg}}{80 \text{ mg}} \times 1 \text{ tablet} = \frac{1}{2} \text{ tablet}$$

$$2) \frac{D}{H} \times Q = \frac{1.5 \text{ mg}}{0.5 \text{ mg}} \times 1 \text{ tablet} = 3 \text{ tablets}$$

3) Use 10 mg capsules; 40 mg capsule cannot be split to provide the 20 mg dose.

$$\frac{D}{H} \times Q = \frac{20 \text{ mg}}{10 \text{ mg}} \times 1 \text{ capsule} = 2 \text{ capsules}$$

$$4) \frac{D}{H} \times Q = \frac{2.5 \text{ mg}}{5 \text{ mg}} \times 1 \text{ tablet} = \frac{2.5}{5.0} \text{ tab} = \frac{1}{2} \text{ tablet}$$

$$5) \frac{D}{H} \times Q = \frac{0.3 \text{ mg}}{0.15 \text{ mg}} \times 1 \text{ tablet} = \frac{0.30}{0.15} \text{ tab} = 2 \text{ tablets}$$

$$6) \frac{D}{H} \times Q = \frac{100 \text{ mg}}{200 \text{ mg}} \times 5 \text{ mL} = \frac{5}{2} \text{ mL} = 2.5 \text{ mL}$$

$$7) \frac{D}{H} \times Q = \frac{12.5 \text{ mg}}{25 \text{ mg}} \times 1 \text{ mL} = \frac{12.5}{25.0} \text{ mL} = 0.5 \text{ mL}$$

$$8) \frac{D}{H} \times Q = \frac{40 \text{ mg}}{50 \text{ mg}} \times 1 \text{ mL} = \frac{4}{5} \text{ mL} = 0.8 \text{ mL}$$

$$9) \frac{D}{H} \times Q = \frac{4 \text{ mg}}{10 \text{ mg}} \times 1 \text{ mL} = 0.4 \text{ mL}$$

$$10) \frac{D}{H} \times Q = \frac{3 \text{ mg}}{2 \text{ mg}} \times 1 \text{ mL} = 1.5 \text{ mL}$$

$$11) \frac{D}{H} \times Q = \frac{350 \text{ mg}}{500 \text{ mg}} \times 2 \text{ mL} = \frac{700}{500} \text{ mL} = 1.4 \text{ mL}$$

$$12) \frac{D}{H} \times Q = \frac{35 \text{ mg}}{80 \text{ mg}} \times 2 \text{ mL} = \frac{70}{80} \text{ mL} = 0.875 \text{ mL} = 0.88 \text{ mL}$$

13) 1 mg = 1,000 mcg (known equivalent)

$$0.2 \text{ mg} \times 1,000 \text{ mcg/mg} = 0.200. = 200 \text{ mcg}$$

$$\frac{D}{H} \times Q = \frac{200 \text{ mcg}}{200 \text{ mcg}} \times 1 \text{ mL} = 1 \text{ mL}$$

14) 1 mg = 1,000 mcg (known equivalent)

$$0.125 \text{ mg} \times 1,000 \text{ mcg/mg} = 0.125. = 125 \text{ mcg}$$

$$\frac{D}{H} \times Q = \frac{125 \text{ mcg}}{500 \text{ mcg}} \times 2 \text{ mL} = \frac{250}{500} \text{ mL} = 0.5 \text{ mL}$$

$$15) \frac{D}{H} \times Q = \frac{80 \text{ mg}}{100 \text{ mg}} \times \frac{1}{10} \text{ mL} = \frac{80}{100} \text{ mL} = 8 \text{ mL}$$

16) 1 g = 1,000 mg (known equivalent)

$$0.4 \text{ g} \times 1,000 \text{ mg/g} = 0.400. = 400 \text{ mg}$$

$$\frac{D}{H} \times Q = \frac{400 \text{ mg}}{100 \text{ mg}} \times 1 \text{ mL} = 4 \text{ mL}$$

$$17) \frac{D}{H} \times Q = \frac{50 \text{ mg}}{250 \text{ mg}} \times 5 \text{ mL} = \frac{5}{5} \text{ mL} = 1 \text{ mL}$$

$$250 \text{ mg}/5 \text{ mL} = 50 \text{ mg}/1 \text{ mL}$$

Do not exceed 50 mg/1 min. The 1 mL dose = 50 mg.
Administer at 1 mL/1 min or 0.25 mL/15 seconds.

$$\frac{1 \text{ mL}}{60 \text{ sec}} \times \frac{X \text{ mL}}{15 \text{ sec}}$$

$$60X = 15$$

$$\frac{60X}{60} = \frac{15}{60}$$

$$X = \frac{1}{4} \text{ mL} = 0.25 \text{ mL}$$

Either syringe could measure the amount, but the 1 mL syringe will provide greater control for pushing medication at the rate recommended.

$$18) \frac{D}{H} \times Q = \frac{35 \text{ mg}}{25 \text{ mg}} \times 1 \text{ mL} = \frac{35}{25} \text{ mL} = 1.4 \text{ mL}$$

$$\begin{aligned} \frac{V \text{ (mL)}}{T \text{ (min)}} \times C \text{ (gtt/mL)} &= \frac{100 \text{ mL}}{20 \text{ min}} \times 15 \text{ gtt/mL} \\ &= \frac{1,500}{20} \text{ gtt/min} = 75 \text{ gtt/min} \end{aligned}$$

$$19) 46 \text{ units} + 22 \text{ units} = 68 \text{ units (total)}$$

$$20) \frac{D}{H} \times Q = \frac{30 \text{ mg}}{60 \text{ mg}} \times 2 \text{ mL} = \frac{2}{2} \text{ mL} = 1 \text{ mL}$$

$$21) \frac{D}{H} \times Q = \frac{35 \text{ mg}}{50 \text{ mg}} \times 1 \text{ mL} = \frac{7}{10} \text{ mL} = 0.7 \text{ mL}$$

$$22) \frac{D}{H} \times Q = \frac{0.4 \text{ mg}}{0.4 \text{ mg}} \times 1 \text{ mL} = 1 \text{ mL}$$

$$23) ^\circ\text{F} = 1.8^\circ\text{C} + 32 = (1.8 \times 39) + 32$$

$$= 70.2 + 32 = 102.2^\circ\text{F};$$

$$102.2^\circ\text{F} \text{ is greater than } 101^\circ\text{F};$$

$$2400 - 2110 = 0250 \text{ or } 2 \text{ h } 50 \text{ min};$$

$$0215 = 2 \text{ h } 15 \text{ min after } 2400;$$

$$2 \text{ h } 50 \text{ min} + 2 \text{ h } 15 \text{ min} = 5 \text{ h } 5 \text{ min}$$

$$24) \frac{D}{H} \times Q = \frac{650 \text{ mg}}{325 \text{ mg}} \times 1 \text{ tablet} = 2 \text{ tablets}$$

$$25) \frac{D}{H} \times Q = \frac{100 \text{ mg}}{80 \text{ mg}} \times \frac{3}{16} \text{ mL} = \frac{300}{16} \text{ mL} = 18.75 \text{ mL}$$

$$= 18.8 \text{ mL}$$

Measure the 18.8 mL precisely to add to the IV PB bag. But for the drip-rate calculation, such a precise measurement is not necessary. You may round the 18.8 mL to 19 mL for the computation of the drip rate only.

$$50 \text{ mL} + 19 \text{ mL} = 69 \text{ mL}$$

$$\begin{aligned} \frac{V \text{ (mL)}}{T \text{ (min)}} \times C \text{ (gtt/mL)} &= \frac{69 \text{ mL}}{30 \text{ min}} \times \frac{2}{1} \text{ gtt/mL} \\ &= 138 \text{ gtt/min} \end{aligned}$$

$$26) \text{ Pump measured in mL/h. } 69 \text{ mL in } 30 \text{ min} = 138 \text{ mL in } 60 \text{ min.}$$

$$\frac{69 \text{ mL}}{30 \text{ min}} \times \frac{X \text{ mL}}{60 \text{ min}}$$

$$30X = 4,140$$

$$\frac{30X}{30} = \frac{4,140}{30}$$

$$X = 138 \text{ mL}$$

$$27) \frac{D}{H} \times Q = \frac{125 \text{ mg}}{500 \text{ mg}} \times 8 \text{ mL} = \frac{2}{4} \text{ mL} = 2 \text{ mL}$$

$$28) \frac{D}{H} \times Q = \frac{1 \text{ g}}{1 \text{ g}} \times 1 \text{ tablet} = 1 \text{ tablet}$$

$$31) 1 \text{ kg} = 2.2 \text{ lb (known equivalent)}$$

$$22 \text{ lb} \div 2.2 \text{ lb/kg} = 22 \text{ lb} \times 1 \text{ kg}/2.2 \text{ lb} = 10 \text{ kg}$$

$$\begin{aligned} \text{Minimum dosage: } 20 \text{ mg/kg/day} \times 10 \text{ kg} &= 200 \text{ mg/day} \\ 200 \text{ mg/day} \div 3 \text{ doses/day} &= 200 \text{ mg/day} \times 1 \text{ day}/3 \text{ doses} \\ &= 66.6 \text{ mg/dose} = 67 \text{ mg/dose} \end{aligned}$$

$$\begin{aligned} \text{Maximum dosage: } 40 \text{ mg/kg/day} \times 10 \text{ kg} &= 400 \text{ mg/day} \\ 400 \text{ mg/day} \div 3 \text{ doses/day} &= 400 \text{ mg/day} \times 1 \text{ day}/3 \text{ doses} \\ &= 133.3 \text{ mg/dose} = 133 \text{ mg/dose} \end{aligned}$$

$$32) \frac{D}{H} \times Q = \frac{100 \text{ mg}}{125 \text{ mg}} \times 5 \text{ mL} = \frac{20}{5} \text{ mL} = 4 \text{ mL}$$

$$33) 1 \text{ kg} = 2.2 \text{ lb (known equivalent)}$$

$$40 \text{ lb} \div 2.2 \text{ lb/kg} = 40 \text{ lb} \times 1 \text{ kg}/2.2 \text{ lb} = 18.18 \text{ kg} = 18.2 \text{ kg}$$

$$40 \text{ mg/kg/day} \times 18.2 \text{ kg} = 728 \text{ mg/day}$$

$$\begin{aligned} 728 \text{ mg/day} \div 3 \text{ doses/day} &= 728 \text{ mg/day} \times 1 \text{ day}/3 \text{ doses} \\ &= 242.6 \text{ mg/dose} = 243 \text{ mg/dose} \end{aligned}$$

close approximation to ordered dosage of 240 mg; dosage is safe.

$$34) \frac{D}{H} \times Q = \frac{240 \text{ mg}}{400 \text{ mg}} \times \frac{1}{2} \text{ mL} = \frac{240}{80} \text{ mL} = 3 \text{ mL}$$

$$35) ^\circ\text{F} = 1.8^\circ\text{C} + 32 = (1.8 \times 39.6) + 32 = 71.28 + 32$$

$$= 103.28^\circ\text{F} = 103.3^\circ\text{F}$$

$$36) 1 \text{ kg} = 2.2 \text{ lb (known equivalent)}$$

$$62 \text{ lb} \div 2.2 \text{ lb/kg} = 62 \text{ lb} \times 1 \text{ kg}/2.2 \text{ lb}$$

$$= 28.18 \text{ kg} = 28.2 \text{ kg}$$

$$\text{Minimum dosage: } 10 \text{ mg/kg} \times 28.2 \text{ kg} = 282 \text{ mg}$$

$$\text{Maximum dosage: } 15 \text{ mg/kg} \times 28.2 \text{ kg} = 423 \text{ mg}$$

$$37) \frac{D}{H} \times Q = \frac{300 \text{ mg}}{80 \text{ mg}} \times 2.5 \text{ mL} = \frac{75}{8} \text{ mL} = 9.37 \text{ mL}$$

$$= 9.4 \text{ mL}$$

- 38) $1 \text{ kg} = 2.2 \text{ lb}$ (known equivalent)
 $110 \text{ lb} \div 2.2 \text{ lb/kg} = 110 \text{ lb} \times 1 \text{ kg}/2.2 \text{ lb} = 50 \text{ kg}$
 Minimum dosage: $20 \text{ mg/kg/day} \times 50 \text{ kg} = 1,000 \text{ mg/day}$
 $1,000 \text{ mg/day} \div 4 \text{ doses/day} = 1,000 \text{ mg/day} \times 1 \text{ day}/4 \text{ doses}$
 $= 250 \text{ mg/dose}$
 Maximum dosage: $30 \text{ mg/kg/day} \times 50 \text{ kg} = 1,500 \text{ mg/day}$
 $1,500 \text{ mg/day} \div 4 \text{ doses/day} = 1,500 \text{ mg/day} \times 1 \text{ day}/4 \text{ doses}$
 $= 375 \text{ mg/dose}$
- 39) $\frac{D}{H} \times Q = \frac{250 \text{ mg}}{300 \text{ mg}} \times 2 \text{ mL} = \frac{10}{6} \text{ mL} = 1.66 \text{ mL} = 1.7 \text{ mL}$
 $1.7 \text{ mL (medication)} + 50 \text{ mL (IV fluid)} = 51.7 \text{ mL} = 52 \text{ mL}$
 (to be infused)
 $\frac{V (\text{mL})}{T (\text{min})} \times C (\text{gtt/mL}) = \frac{52 \text{ mL}}{20 \text{ min}} \times \frac{1}{10} \text{ gtt/mL}$
 $= \frac{52}{2} \text{ gtt/min} = 26 \text{ gtt/min}$
- 40) IV fluid: $50 \text{ mL} + 50 \text{ mL} = 100 \text{ mL}$
 Gelatin: $4 \text{ fl oz} = 4 \text{ fl oz} \times 30 \text{ mL/fl oz} = 120 \text{ mL}$
 Water: $3 \text{ fl oz} \times 2 = 6 \text{ fl oz} = 6 \text{ fl oz} \times 30 \text{ mL/fl oz} = 180 \text{ mL}$
 Apple juice: $16 \text{ fl oz} = 16 \text{ fl oz} \times 30 \text{ mL/fl oz} = 480 \text{ mL}$
 Total = 880 mL
- 41) $\frac{V (\text{mL})}{T (\text{min})} \times C (\text{gtt/mL}) = \frac{600 \text{ mL}}{240 \text{ min}} \times \frac{1}{10} \text{ gtt/mL}$
 $= \frac{600}{24} \text{ gtt/min} = 25 \text{ gtt/min}$
- 42) $\frac{D}{H} \times Q = \frac{1 \text{ mg}}{50 \text{ mg}} \times \frac{1}{50} \text{ mL} = 1 \text{ mL}$
- 43) $1 \text{ mg/dose} \times 5 \text{ doses} = 5 \text{ mg}$
 $1 \text{ mL/dose} \times 5 \text{ doses} = 5 \text{ mL}$
- 44) $50 \text{ mg} \div 1 \text{ mg/dose} = 50 \text{ mg} \times 1 \text{ dose}/1 \text{ mg} = 50 \text{ doses}$
- 45) $50 \text{ doses} \div 5 \text{ doses/h} = 50 \text{ doses} \times 1 \text{ h}/5 \text{ doses} = 10 \text{ h}$
 $1430 \text{ h} + 1000 \text{ h} = 2430 \text{ h} = 0030 = 12:30 \text{ AM}$
 (or 30 min after midnight, the next day)
- 46) $1 \text{ g} = 1,000 \text{ mg}$ (known equivalent)
 $1,000 \text{ mg} \div 100 \text{ mg/mL} = 1,000 \text{ mg} \times 1 \text{ mL}/100 \text{ mg}$
 $= 10 \text{ mL}$;
 therefore, after adding 9.6 mL to the vial, the resulting volume totals 10 mL.
- 47) 100; 1
- 48) $1 \text{ g} = 1,000 \text{ mg}$ (known equivalent)
 $0.5 \text{ g} \times 1,000 \text{ mg/g} = 0.500 \times 1,000 = 500 \text{ mg}$
- $\frac{D}{H} \times Q = \frac{500 \text{ mg}}{100 \text{ mg}} \times 1 \text{ mL} = 5 \text{ mL}$
- 49) Clinical reasoning indicates that the full reconstituted solution will be used up within 2 doses, so storage unrefrigerated for 24 hours is satisfactory.

Mathematics Diagnostic Evaluation from pages 28–30

- 1) 1,517.63 2) 20.74 3) 100.66 4) \$323.72 5) 46.11 6) 754.5 7) 16.91 8) 19,494.7 9) \$173.04 10) 403.26 11) 36
 12) 2,500 13) $\frac{2}{3}$ 14) 6.25 15) $\frac{4}{5}$ 16) 40% 17) 0.4% 18) 0.05 19) 1:3 20) 0.02 21) $1\frac{1}{4}$ 22) $6\frac{13}{24}$ 23) $1\frac{11}{18}$ 24) $\frac{3}{5}$ 25) $14\frac{7}{8}$
 26) $\frac{1}{100}$ 27) 0.009 28) 320 29) 3 30) 0.05 31) 4 32) 0.09 33) 0.22 34) 25 35) 4 36) 0.75 37) 3 38) 500 39) 18.24
 40) 2.4 41) $\frac{1}{5}$ 42) 1:50 43) 5 tablets 44) 2 milligrams 45) 30 kilograms 46) 3.3 pounds 47) 6.67 centimeters
 48) 7.5 centimeters 49) 90% 50) 5:1

Solutions—Mathematics Diagnostic Evaluation

- 1) $1,517 + 0.63 = 1,517.00$
 $\begin{array}{r} 1,517.00 \\ + 0.63 \\ \hline 1,517.63 \end{array}$
- 2) $0.7 + 0.035 + 20.006 = 20.741 = 20.74$
 $\begin{array}{r} 0.700 \\ 0.035 \\ + 20.006 \\ \hline 20.741 \end{array}$
- 3) $\begin{array}{r} 9.50 \\ 17.06 \\ 32.00 \\ 41.11 \\ + 0.99 \\ \hline 100.66 \end{array}$
- 4) $\$19.69 + \$304.03 = \$323.72$
 $\begin{array}{r} \$19.69 \\ + \$304.03 \\ \hline \$323.72 \end{array}$
- 5) $93.2 - 47.09 = 46.11$
 $\begin{array}{r} 93.20 \\ - 47.09 \\ \hline 46.11 \end{array}$
- 6) $1,005.0 - 250.5 = 754.5$
 $\begin{array}{r} 1,005.0 \\ - 250.5 \\ \hline 754.5 \end{array}$
- 7) $17.156 - 0.25 = 16.906 = 16.91$
 $\begin{array}{r} 17.156 \\ - 0.250 \\ \hline 16.906 \end{array}$
- 8) $509 \times 38.3 = 19,494.7$
 $\begin{array}{r} 509 \\ \times 38.3 \\ \hline 1527 \\ 4072 \\ 1527 \\ \hline 19494.7 \end{array}$

$$9) \quad \$4.12 \times 42 = \begin{array}{r} \$4.12 \\ \times 42 \\ \hline 824 \\ 1648 \\ \hline \$173.04 \end{array}$$

$$10) \quad \begin{array}{r} 17.16 \\ \times 23.5 \\ \hline 8580 \\ 5148 \\ 3432 \\ \hline 403.260 = 403.26 \end{array}$$

$$11) \quad 972 \div 27 = 27 \overline{)972} \begin{array}{r} 36 \\ 81 \\ \hline 162 \\ \hline 162 \\ \hline \end{array}$$

$$12) \quad \begin{array}{r} 2500. \\ 0.001 \overline{)2.500} \end{array} = 2,500$$

$$13) \quad \frac{1}{4} \div \frac{3}{8} = \frac{1}{4} \times \frac{8}{3} = \frac{2}{3}$$

$$14) \quad \frac{1,500}{240} = 240 \overline{)1,500.00} \begin{array}{r} 6.25 \\ 1440 \downarrow \\ 600 \\ 480 \downarrow \\ 1200 \\ 1200 \\ \hline \end{array}$$

$$15) \quad 0.8 = \frac{8}{10} = \frac{4}{5}$$

$$16) \quad \frac{2}{5} = 5 \overline{)2.0} \begin{array}{r} 0.4 \\ 20 \\ \hline \end{array} \quad 0.4 \times 100 = 0.40 = 40\%$$

$$17) \quad 0.004 \times 100 = 0.004 = 0.4\%$$

$$18) \quad 5\% = \frac{5}{100} = 5 \div 100 = .05 = 0.05$$

$$19) \quad 33\frac{1}{3}\% = \frac{33\frac{1}{3}}{100} = \frac{\frac{100}{3}}{100} = \frac{100}{3} \div \frac{100}{1} = \frac{100}{3} \times \frac{1}{100} = \frac{1}{3} =$$

$$20) \quad 1:50 = 50 \overline{)1.00} \begin{array}{r} 0.02 \\ 100 \\ \hline \end{array}$$

$$21) \quad \frac{1}{2} + \frac{3}{4} \quad \frac{1}{2} = \frac{2}{4} \\ + \frac{3}{4} = + \frac{3}{4} \\ \hline \frac{5}{4} = 1\frac{1}{4}$$

$$22) \quad 1\frac{2}{3} + 4\frac{7}{8} \quad 1\frac{2}{3} = 1\frac{16}{24} \\ + 4\frac{7}{8} = + 4\frac{21}{24} \\ \hline 5\frac{37}{24} = 6\frac{13}{24}$$

$$23) \quad 1\frac{5}{6} - \frac{2}{9} \quad 1\frac{5}{6} = 1\frac{15}{18} \\ - \frac{2}{9} = - \frac{4}{18} \\ \hline 1\frac{11}{18}$$

$$24) \quad \frac{1}{100} \times 60 = \frac{1}{100} \times \frac{60}{1} = \frac{3}{5}$$

$$25) \quad 4\frac{1}{4} \times 3\frac{1}{2} = \frac{17}{4} \times \frac{7}{2} = \frac{119}{8} = 14\frac{7}{8}$$

$$26) \quad \frac{1}{150}; \frac{1}{200}; \frac{1}{100} \\ \frac{1}{100} \text{ is the greatest}$$

$$27) \quad \begin{array}{l} 0.009 \\ 0.190 \\ 0.900 \end{array} \\ \uparrow \\ 0.009 \text{ has the smallest value in the tenth place}$$

$$28) \quad \frac{6.4}{0.02} = 0.02 \overline{)6.40} \begin{array}{r} 320. \\ 640 \\ \hline 04 \\ 4 \\ \hline 00 \end{array}$$

$$29) \quad \frac{0.02 + 0.16}{0.4 - 0.34}$$

$$\begin{array}{r} 0.02 \\ + 0.16 \\ \hline 0.18 \end{array} \quad \begin{array}{r} 0.40 \\ - 0.34 \\ \hline 0.06 \end{array}$$

$$\frac{0.18}{0.06} = 0.06 \overline{)0.18} = 3$$

$$30) \quad \frac{3}{12+3} \times 0.25 = \frac{3}{15} \times \frac{25}{100} = \frac{3}{60} = 60 \overline{)3.00} \begin{array}{r} 0.05 \\ 300 \\ \hline 300 \\ \hline \end{array}$$

$$31) \quad 8\% \text{ of } 50 = 0.08 \times 50 = 4$$

$$32) \quad \frac{1}{2}\% = 0.5\% = 0.005 \quad \begin{array}{r} 18 \\ \times 0.005 \\ \hline 0.090 = 0.09 \end{array}$$

$$33) \quad 0.9\% \times 24 = 0.009 \times 24 = 0.216 = 0.22$$

$$34) \quad \frac{1:1,000}{1:100} \times 250 = \frac{1,000}{1} \times 250 = \frac{1}{1,000} \div \frac{1}{100} \times 250 \\ = \frac{1}{1,000} \times \frac{100}{1} \times \frac{250}{1} = \frac{250}{10} = 25$$

$$35) \frac{300}{150} \times 2 = X$$

$$\frac{2}{\cancel{300}^1} \times 2 = X$$

$$X = 4$$

$$36) \frac{2.5}{5} \times 1.5 = X$$

$$X = 0.5 \times 1.5 = 0.75$$

$$37) \frac{1,000,000}{250,000} \times X = 12$$

$$\frac{4}{\cancel{1,000,000}^1} \times X = 12$$

$$4X = 12$$

$$\frac{4X}{4} = \frac{12}{4}$$

$$X = 3$$

$$38) \frac{0.51}{1.7} \times X = 150$$

$$0.3X = 150$$

$$\frac{0.3X}{0.3} = \frac{150}{0.3}$$

$$X = 500$$

$$39) X = (82.4 - 52) \frac{3}{5}$$

$$X = 30.4 \times \frac{3}{5} = \frac{30.4}{1} \times \frac{3}{5} = \frac{91.2}{5} = 18.24$$

$$40) \frac{\frac{1}{150}}{\frac{1}{300}} \times 1.2 = X$$

$$\left(\frac{1}{150} \div \frac{1}{300} \right) \times 1.2 = X$$

$$\left(\frac{1}{\cancel{150}^1} \times \frac{\cancel{300}^2}{1} \right) \times 1.2 = X$$

$$2 \times 1.2 = X$$

$$2.4 = X$$

$$41) 2:10 = \frac{2}{10} = \frac{1}{5}$$

$$42) 2\% = \frac{2}{100} = \frac{1}{50} = 1:50$$

$$43) 25 \div 5 = 5 \text{ tablets}$$

$$44) 0.5 \times 4 = 2 \text{ milligrams/day}$$

$$45) 66 \text{ pounds} = \frac{66}{2.2} = 30 \text{ kilograms or}$$

$$\frac{2.2 \text{ pounds}}{1 \text{ kilogram}} \quad \times \quad \frac{66 \text{ pounds}}{X \text{ kilograms}}$$

$$2.2X = 66$$

$$\frac{2.2X}{2.2} = \frac{66}{2.2}$$

$$X = 30 \text{ kilograms}$$

$$46) \frac{2.2 \text{ pounds}}{1 \text{ kilogram}} \quad \times \quad \frac{X \text{ pounds}}{1.5 \text{ kilograms}} \quad \begin{array}{r} 2.2 \\ \times 1.5 \\ \hline 110 \\ 22 \\ \hline 3.30 \end{array}$$

$$X = 3.3 \text{ lb}$$

$$47) \frac{1 \text{ centimeter}}{\frac{3}{8} \text{ inch}} \quad \times \quad \frac{X \text{ centimeter}}{2\frac{1}{2} \text{ inches}}$$

$$\frac{3}{8} X = 2\frac{1}{2}$$

$$\frac{3}{8} X = \frac{5}{2}$$

$$\frac{\frac{3}{8} X}{\frac{3}{8}} = \frac{\frac{5}{2}}{\frac{3}{8}}$$

$$X = \frac{5}{2} \div \frac{3}{8} = \frac{5}{2} \times \frac{8}{3} = \frac{20}{3} = 6.666 = 6.67$$

$$48) \frac{2.5 \text{ centimeters}}{1 \text{ inch}} \quad \times \quad \frac{X \text{ centimeters}}{3 \text{ inches}}$$

$$X = 7.5 \text{ centimeters}$$

$$49) \begin{array}{r} 50 \text{ items} \\ - 5 \text{ incorrect} \\ \hline 45 \text{ correct} \end{array} \quad \frac{45}{50} = \frac{9}{10} = 90\% \text{ (correct)}$$

$$50) 5 \text{ females to } 1 \text{ male} \\ 5:1$$

Review Set 1 from pages 37–38

- 1) $\frac{6}{5}$ 2) $\frac{100}{1}$ 3) $\frac{1}{4}, \frac{1}{14}$ 4) $1\frac{2}{9}, 1\frac{1}{4}, 5\frac{7}{8}$ 5) $\frac{3}{4} = \frac{6}{8}, \frac{1}{5} = \frac{2}{10}, \frac{3}{9} = \frac{1}{3}$ 6) $\frac{13}{2}$ 7) $\frac{6}{5}$ 8) $\frac{32}{3}$ 9) $\frac{47}{6}$ 10) $\frac{411}{4}$ 11) 2 12) 1
- 13) $3\frac{1}{3}$ 14) $1\frac{1}{3}$ 15) $2\frac{3}{4}$ 16) $\frac{6}{8}$ 17) $\frac{4}{16}$ 18) $\frac{8}{12}$ 19) $\frac{4}{10}$ 20) $\frac{6}{9}$ 21) $\frac{1}{100}$ 22) $\frac{1}{10,000}$ 23) $\frac{5}{9}$ 24) $\frac{3}{10}$ 25) $\frac{2}{5}$ bottle 26) $1\frac{1}{2}$ bottles
- 27) $\frac{2}{5}$ of the students are men 28) $\frac{9}{10}$ of the questions were answered correctly 29) $\frac{1}{2}$ dose 30) $\frac{1}{2}$ teaspoon

Solutions—Review Set 1

- 1) Improper fraction: numerator is greater than or equal to denominator
 $\frac{6}{6}, \frac{7}{5}$

- 2) Complex fraction: numerator and/or denominator is a fraction
 $\frac{\frac{1}{100}}{\frac{1}{150}}$

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Review Set 2 — Pages 40–41

ANSWERS

- 3) Proper fraction: numerator is less than denominator and value is less than 1

$$\frac{1}{4}, \frac{1}{14}$$

- 4) Mixed number reduced to lowest terms: whole number + reduced fraction

$$1\frac{2}{9}, 1\frac{1}{4}, 5\frac{7}{8}$$

- 5) $\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$; $\frac{3}{4} = \frac{6}{8}$

$$\frac{1}{5} = \frac{1 \times 2}{5 \times 2} = \frac{2}{10}; \frac{1}{5} = \frac{2}{10}$$

$$\frac{3}{9} = \frac{3 \div 3}{9 \div 3} = \frac{1}{3}; \frac{3}{9} = \frac{1}{3}$$

- 6) $6\frac{1}{2} = \frac{(6 \times 2) + 1}{2} = \frac{13}{2}$

- 7) $1\frac{1}{5} = \frac{(1 \times 5) + 1}{5} = \frac{6}{5}$

- 8) $10\frac{2}{3} = \frac{(10 \times 3) + 2}{3} = \frac{32}{3}$

- 9) $7\frac{5}{6} = \frac{(7 \times 6) + 5}{6} = \frac{47}{6}$

- 10) $102\frac{3}{4} = \frac{(102 \times 4) + 3}{4} = \frac{411}{4}$

- 11) $\frac{24}{12} = 12 \overline{)24}$
 $\underline{24}$

- 12) $\frac{\frac{1}{8}}{\frac{1}{8}} = 1$

- 13) $\frac{30}{9} = 9 \overline{)30}$
 $\underline{27}$
 $\frac{3}{3}$

$$3\frac{3}{9} = 3\frac{1}{3}$$

- 14) $\frac{100}{75} = 1\frac{25}{75} = 1\frac{1}{3}$

- 15) $\frac{44}{16} = 16 \overline{)44}$
 $\underline{32}$
 $\frac{12}{12}$
 $2\frac{12}{16} = 2\frac{3}{4}$

- 16) $\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$

- 17) $\frac{1}{4} = \frac{1 \times 4}{4 \times 4} = \frac{4}{16}$

- 18) $\frac{2}{3} \times \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$

- 19) $\frac{2}{5} = \frac{2 \times 2}{5 \times 2} = \frac{4}{10}$

- 20) $\frac{2}{3} = \frac{2 \times 3}{3 \times 3} = \frac{6}{9}$

- 21) $\frac{1}{100}$ is larger than $\frac{1}{150}$

The numerators are the same. The fraction with the smaller denominator has the greater value.

- 22) $\frac{1}{10,000}$ is smaller than $\frac{1}{1,000}$

- 23) $\frac{5}{9}$ is larger than $\frac{2}{9}$

The denominators are both the same. The fraction with the larger numerator has the greater value.

- 24) $\frac{3}{10}$ is smaller than $\frac{5}{10}$

- 25) 10 fluid ounces – 6 fluid ounces = 4 fluid ounces remaining

$$\frac{\frac{2}{5}}{\frac{1}{5}} = \frac{2}{1} \text{ bottle remaining}$$

- 26) $\frac{1 \text{ bottle}}{12 \text{ doses}} \longleftrightarrow \frac{X \text{ bottles}}{18 \text{ doses}}$

$$12X = 18$$

$$\frac{12X}{12} = \frac{18}{12}$$

$$X = 1\frac{6}{12} = 1\frac{1}{2} \text{ bottles}$$

- 27) $\begin{array}{r} 24 \text{ men} \\ + 36 \text{ women} \\ \hline 60 \text{ people in class} \end{array}$

The men represent $\frac{24}{60}$ or $\frac{2}{5}$ of the students in the class.

- 28) $\frac{18}{20} = \frac{18 \div 2}{20 \div 2} = \frac{9}{10}$

- 29) $\frac{160 \text{ mg}}{1 \text{ dose}} \longleftrightarrow \frac{80 \text{ mg}}{X \text{ doses}}$

$$160X = 80$$

$$\frac{160X}{160} = \frac{80}{160}$$

$$X = \frac{1}{2} \text{ dose}$$

- 30) $\frac{160 \text{ mg}}{1 \text{ t}} \longleftrightarrow \frac{80 \text{ mg}}{X \text{ t}}$

$$160X = 80$$

$$\frac{160X}{160} = \frac{80}{160}$$

$$X = \frac{1}{2} \text{ teaspoon}$$

Review Set 2 from pages 40–41

- 1) $8\frac{7}{15}$ 2) $1\frac{5}{12}$ 3) $17\frac{5}{24}$ 4) $1\frac{1}{24}$ 5) $32\frac{5}{6}$ 6) $5\frac{7}{12}$ 7) $1\frac{1}{3}$ 8) $5\frac{53}{72}$ 9) 43 10) $5\frac{118}{119}$ 11) $2\frac{8}{15}$ 12) $\frac{53}{132}$ 13) $\frac{1}{2}$ 14) $4\frac{5}{6}$ 15) $\frac{1}{24}$ 16) $63\frac{2}{3}$
 17) $290\frac{4}{5}$ 18) $\frac{1}{6}$ 19) $1\frac{2}{5}$ 20) $7\frac{1}{16}$ 21) $7\frac{2}{9}$ 22) $1\frac{1}{4}$ 23) $24\frac{6}{11}$ 24) $\frac{7}{12}$ 25) $\frac{1}{25}$ 26) $5\frac{5}{6}$ fluid ounces 27) $1\frac{1}{8}$ inches 28) 8 inches
 29) $21\frac{1}{2}$ pints 30) $13\frac{1}{4}$ pounds

20) $14\frac{3}{16} - 7\frac{1}{8}$ $14\frac{3}{16} = 14\frac{3}{16}$
 $- 7\frac{1}{8} = -7\frac{2}{16}$

 $7\frac{1}{16}$

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Review Set 3 — Pages 45–46

ANSWERS

$$\begin{array}{r} 21) \quad 25 - 17\frac{7}{9} \quad 25 = 24\frac{9}{9} \\ \quad \quad \quad -17\frac{7}{9} = -17\frac{7}{9} \\ \hline \quad \quad \quad 7\frac{2}{9} \end{array}$$

$$\begin{array}{r} 22) \quad 4\frac{7}{10} - 3\frac{9}{20} \quad 4\frac{7}{10} = 4\frac{14}{20} \\ \quad \quad \quad -3\frac{9}{20} = -3\frac{9}{20} \\ \hline \quad \quad \quad 1\frac{5}{20} = 1\frac{1}{4} \end{array}$$

$$\begin{array}{r} 23) \quad 48\frac{6}{11} - 24 \quad 48\frac{6}{11} \\ \quad \quad \quad -24 \\ \hline \quad \quad \quad 24\frac{6}{11} \end{array}$$

$$\begin{array}{r} 24) \quad 1\frac{2}{3} - 1\frac{1}{12} \quad 1\frac{2}{3} = 1\frac{8}{12} \\ \quad \quad \quad -1\frac{1}{12} = -1\frac{1}{12} \\ \hline \quad \quad \quad \frac{7}{12} \end{array}$$

$$25) \quad 50 \text{ pounds} - 48 \text{ pounds} = 2 \text{ pounds lost}$$

$$\frac{2}{50} = \frac{1}{25} \text{ of weight lost}$$

$$\begin{array}{l} 26) \quad 2\frac{1}{2} \text{ fluid ounces} + 3\frac{1}{3} \text{ fluid ounces} = \\ \quad \quad \quad 2\frac{3}{6} + 3\frac{2}{6} = 5\frac{5}{6} \text{ fluid ounces} \end{array}$$

$$27) \quad \frac{1}{2} \text{ inch} + \frac{1}{4} \text{ inch} + \frac{3}{8} \text{ inch} = \text{total growth for 3 months}$$

$$\frac{1}{2} = \frac{4}{8}$$

$$\frac{1}{4} = \frac{2}{8}$$

$$\begin{array}{r} + \frac{3}{8} = + \frac{3}{8} \\ \hline \frac{9}{8} = 1\frac{1}{8} \text{ inches grown} \end{array}$$

$$28) \quad 11 \text{ inches} - \left(1\frac{1}{2} \text{ inches} + 1\frac{1}{2} \text{ inches}\right)$$

$$1\frac{1}{2}$$

$$+ 1\frac{1}{2}$$

$$\hline 2\frac{2}{2} = 3 \text{ inches in the margins}$$

$$11 - 3 = 8 \text{ inches vertical area available to write}$$

$$\begin{array}{r} 29) \quad 56 - 34\frac{1}{2} \quad 55\frac{2}{2} \\ \quad \quad \quad - 34\frac{1}{2} \\ \hline \quad \quad \quad 21\frac{1}{2} \text{ pints} \end{array}$$

$$\begin{array}{r} 30) \quad 20\frac{1}{2} - 7\frac{1}{4} \quad 20\frac{2}{4} \\ \quad \quad \quad - 7\frac{1}{4} \\ \hline \quad \quad \quad 13\frac{1}{4} \text{ pounds} \end{array}$$

Review Set 3 from pages 45–46

- 1) $\frac{1}{40}$ 2) $\frac{36}{125}$ 3) $\frac{35}{48}$ 4) $\frac{3}{100}$ 5) 3 6) $1\frac{2}{3}$ 7) $\frac{4}{5}$ 8) $6\frac{8}{15}$ 9) $\frac{1}{2}$ 10) $23\frac{19}{36}$ 11) $\frac{3}{32}$ 12) $254\frac{1}{6}$ 13) 3 14) $1\frac{34}{39}$ 15) $\frac{3}{14}$ 16) $\frac{1}{11}$ 17) $\frac{1}{2}$
 18) $\frac{1}{30}$ 19) $3\frac{1}{3}$ 20) $\frac{3}{20}$ 21) $\frac{1}{3}$ 22) $\frac{7}{12}$ 23) $1\frac{1}{9}$ 24) 60 calories 25) 560 seconds 26) 40 doses 27) $31\frac{1}{2}$ tablets
 28) 1,275 milliliters 29) $52\frac{1}{2}$ ounces 30) 6 full days

Solutions—Review Set 3

$$\begin{array}{l} 1) \quad \frac{3}{10} \times \frac{1}{12} \\ \quad \quad \frac{\cancel{3}}{10} \times \frac{1}{\cancel{12}_4} = \frac{1}{40} \end{array}$$

$$2) \quad \frac{12}{25} \times \frac{3}{5} = \frac{36}{125}$$

$$3) \quad \frac{5}{8} \times 1\frac{1}{6} = \frac{5}{8} \times \frac{7}{6} = \frac{35}{48}$$

$$4) \quad \frac{1}{100} \times 3 = \frac{1}{100} \times \frac{3}{1} = \frac{3}{100}$$

$$5) \quad \frac{1}{\frac{1}{4}} \times \frac{3}{\frac{2}{3}} = \left(\frac{1}{\cancel{1}_6} \times \frac{4}{1}\right) \times \left(\frac{3}{1} \times \frac{3}{2}\right) = \frac{\cancel{4}}{6} \times \frac{9}{2} = \frac{3}{\cancel{2}_1} \times \frac{9}{2} = \frac{27}{2} = 13\frac{1}{2}$$

$$\begin{array}{l} 6) \quad \frac{\frac{1}{150}}{\frac{1}{100}} \times 2\frac{1}{2} = \left(\frac{1}{150} \div \frac{1}{100}\right) \times \frac{5}{2} = \left(\frac{1}{\cancel{150}_3} \times \frac{\cancel{100}}{1}\right) \times \frac{5}{2} \\ \quad \quad \quad = \frac{1}{3} \times \frac{\cancel{2}}{1} \times \frac{5}{2} = \frac{5}{3} = 1\frac{2}{3} \end{array}$$

$$7) \quad \frac{30}{75} \times 2 = \frac{\cancel{30}^2}{\cancel{75}_5} \times \frac{2}{1} = \frac{4}{5}$$

$$8) \quad 9\frac{4}{5} \times \frac{2}{3} = \frac{49}{5} \times \frac{2}{3} = \frac{98}{15} = 6\frac{8}{15}$$

$$9) \quad \frac{3}{4} \times \frac{2}{3} = \frac{\cancel{3}}{4} \times \frac{\cancel{2}}{\cancel{3}_1} = \frac{1}{2}$$

$$10) \quad 4\frac{2}{3} \times 5\frac{1}{24} = \frac{\cancel{14}^7}{3} \times \frac{121}{\cancel{24}_{12}} = \frac{847}{36} = 23\frac{19}{36}$$

$$11) \quad \frac{3}{4} \times \frac{1}{8} = \frac{3}{32}$$

$$12) \quad 12\frac{1}{2} \times 20\frac{1}{3} = \frac{25}{2} \times \frac{61}{3} = \frac{1525}{6} = 254\frac{1}{6}$$

$$13) \quad \frac{3}{4} \div \frac{1}{4} = \frac{3}{\cancel{4}} \times \frac{\cancel{4}}{1} = \frac{3}{1} = 3$$

$$14) \quad 6\frac{1}{12} \div 3\frac{1}{4} = \frac{73}{12} \div \frac{13}{4} = \frac{73}{12} \times \frac{4}{13} = \frac{73}{39} = 1\frac{34}{39}$$

$$15) \quad \frac{1}{8} \div \frac{7}{12} = \frac{1}{8} \times \frac{12}{7} = \frac{3}{14}$$

$$16) \quad \frac{1}{33} \div \frac{1}{3} = \frac{1}{33} \times \frac{3}{1} = \frac{3}{33} = \frac{1}{11}$$

$$17) \quad 5\frac{1}{4} \div 10\frac{1}{2} = \frac{21}{4} \div \frac{21}{2} = \frac{21}{4} \times \frac{2}{21} = \frac{1}{2}$$

$$18) \quad \frac{1}{60} \div \frac{1}{2} = \frac{1}{60} \times \frac{2}{1} = \frac{1}{30}$$

$$19) \quad 2\frac{1}{2} \div \frac{3}{4} = \frac{5}{2} \div \frac{3}{4} = \frac{5}{2} \times \frac{4}{3} = \frac{10}{3} = 3\frac{1}{3}$$

$$20) \quad \frac{\frac{1}{20}}{\frac{1}{3}} = \frac{1}{20} \div \frac{1}{3} = \frac{1}{20} \times \frac{3}{1} = \frac{3}{20}$$

$$21) \quad \frac{1}{150} \div \frac{1}{50} = \frac{1}{150} \times \frac{50}{1} = \frac{1}{3}$$

$$22) \quad \frac{7}{8} \div 1\frac{1}{2} = \frac{7}{8} \div \frac{3}{2} = \frac{7}{8} \times \frac{2}{3} = \frac{7}{12}$$

$$23) \quad \frac{\frac{3}{5}}{\frac{1}{4}} \div \frac{\frac{4}{5}}{\frac{1}{9}} = \left(\frac{3}{5} \times \frac{4}{1} \right) \div \left(\frac{4}{5} \times \frac{9}{1} \right)$$

$$= \left(\frac{12}{5} \times \frac{4}{1} \right) \div \left(\frac{4}{5} \times \frac{9}{1} \right)$$

$$= \frac{4}{5} \div \frac{36}{50} = \frac{4}{5} \times \frac{50}{36} = \frac{10}{9} = 1\frac{1}{9}$$

$$24) \quad \frac{80 \text{ calories}}{1 \text{ apple}} \times \frac{X \text{ calories}}{\frac{3}{4} \text{ apple}}$$

$$X = \frac{3}{4} \times 80$$

$$X = 60 \text{ calories}$$

$$25) \quad \frac{60 \text{ sec}}{1 \text{ min}} \times \frac{X \text{ sec}}{9\frac{1}{3} \text{ min}}$$

$$X = 9\frac{1}{3} \times 60 = \frac{28}{3} \times \frac{20}{1} = 560$$

$$X = 560 \text{ seconds}$$

$$26) \quad \frac{\frac{1}{2} \text{ t}}{1 \text{ dose}} = \frac{20 \text{ t}}{X \text{ doses}}$$

$$\frac{1}{2} X = 20$$

$$\frac{1X}{\frac{1}{2}} = \frac{20}{\frac{1}{2}}$$

$$X = 20 \div \frac{1}{2} = \frac{20}{1} \times \frac{2}{1} = 40 \text{ doses}$$

$$27) \quad 3 \times 7 = 21 \text{ doses}$$

$$21 \times 1\frac{1}{2} \text{ tablets} =$$

$$\frac{21}{1} \times \frac{3}{2} = \frac{63}{2} =$$

$$31\frac{1}{2} \text{ tablets}$$

$$28) \quad \frac{1}{3} \text{ full means the patient drank } \frac{2}{3} \text{ pitcher;}$$

$$\frac{2}{3} \text{ pitcher} = 850 \text{ mL}$$

$$\frac{\frac{2}{3} \text{ pitcher}}{850 \text{ mL}} \times \frac{1 \text{ pitcher}}{X \text{ mL}}$$

$$\frac{2}{3} X = 850$$

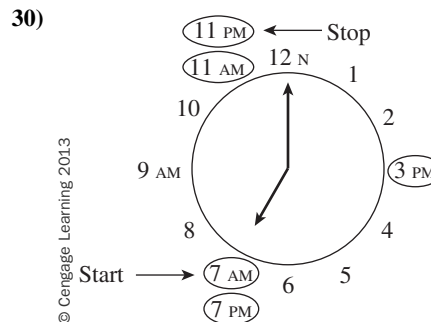
$$\frac{\frac{2}{3} X}{\frac{2}{3}} = \frac{850}{\frac{2}{3}}$$

$$X = 850 \div \frac{2}{3} = \frac{850}{1} \times \frac{3}{2} = \frac{2,550}{2} = 1,275 \text{ mL}$$

$$29) \quad \frac{1 \text{ tube}}{\frac{7}{10} \text{ ounce}} \times \frac{75 \text{ tubes}}{X \text{ ounces}}$$

$$X = \frac{7}{10} \times \frac{75}{1} = \frac{105}{2}$$

$$X = 52\frac{1}{2} \text{ ounces}$$



Daily doses would be taken at: 7 AM, 11 AM, 3 PM, 7 PM, and 11 PM for 5 doses/day.

$$5 \text{ doses/day} \times \frac{1}{2} \text{ fluid ounce/dose} = \frac{5}{2} =$$

$$2\frac{1}{2} \text{ fluid ounces/day}$$

$$16 \text{ fluid ounces} \div 2\frac{1}{2} \text{ fluid ounces/day} = \frac{16}{1} \div \frac{5}{2} =$$

$$\frac{16}{1} \times \frac{2}{5} = \frac{32}{5} = 6\frac{2}{5} \text{ days or 6 full days}$$

Review Set 4 from pages 52–53

- 1) 0.2, two tenths 2) $\frac{17}{20}$, 0.85 3) $1\frac{1}{20}$, one and five hundredths 4) $\frac{3}{500}$, six thousandths 5) 10.015, ten and fifteen thousandths 6) $1\frac{9}{10}$, one and nine tenths 7) $5\frac{1}{10}$, 5.1 8) 0.8, eight tenths 9) $250\frac{1}{2}$, two hundred fifty and five tenths 10) 33.03, thirty-three and three hundredths 11) $\frac{19}{20}$, ninety-five hundredths 12) 2.75, two and seventy-five hundredths 13) $7\frac{1}{200}$, 7.005 14) 0.084, eighty-four thousandths 15) $12\frac{1}{8}$, twelve and one hundred twenty-five thousandths 16) $20\frac{9}{100}$, twenty and nine hundredths 17) $22\frac{11}{500}$, 22.022 18) $\frac{3}{20}$, fifteen hundredths 19) 1,000.005, one thousand and five thousandths 20) $4,085\frac{3}{40}$, 4,085.075 21) 0.0170 22) 0.25 23) 0.75 24) $\frac{9}{200}$ 25) 0.12 26) 0.063 27) False 28) False 29) True 30) 0.8 gram and 1.25 grams

Solutions—Review Set 4

- 1) Decimal

$$\begin{array}{r} 0.2 \\ \frac{1}{5} = 5 \overline{) 1.0} \\ \underline{1\ 0} \\ 0 \end{array}$$

$$\frac{1}{5} = 0.2$$

Read: two tenths

- 2) Fraction

$$\frac{85}{100} = \frac{17}{20}$$

Decimal

$$\begin{array}{r} 0.85 \\ \frac{85}{100} = 100 \overline{) 85.0} \\ \underline{80\ 0} \\ 5\ 00 \\ \underline{5\ 00} \end{array}$$

- 3) Fraction

$$1.05 = 1\frac{5}{100} = 1\frac{1}{20}$$

Read: one and five hundredths

- 4) Fraction

$$0.006 = \frac{6}{1,000} = \frac{3}{500}$$

Read: six thousandths

- 5) Decimal

$$\begin{array}{r} 10.015 \\ 10\frac{3}{200} = \frac{2003}{200} = 200 \overline{) 2,003.000} \\ \underline{2\ 00} \downarrow \\ 03 \downarrow \\ 0 \downarrow \\ 30 \downarrow \\ 0 \downarrow \\ 300 \downarrow \\ 200 \downarrow \\ 1000 \downarrow \\ 1000 \end{array}$$

Read: ten and fifteen thousandths

- 6) Fraction

$$1.9 = 1\frac{9}{10}$$

Read: one and nine tenths

- 7) Fraction

$$\text{five and one tenth} = 5\frac{1}{10}$$

Decimal

$$\begin{array}{r} 5.1 \\ 5\frac{1}{10} = \frac{51}{10} = 10 \overline{) 51.0} = 5.1 \\ \underline{50\ 0} \\ 1\ 0 \\ \underline{1\ 0} \end{array}$$

- 8) Decimal

$$\frac{4}{5} = 5 \overline{) 4.0}$$

Read: eight tenths

- 9) Fraction

$$250.5 = 250\frac{5}{10} = 250\frac{1}{2}$$

Read: two hundred fifty and five tenths

- 10) Decimal

$$\begin{array}{r} 33.03 \\ 33\frac{3}{100} = \frac{3303}{100} = 100 \overline{) 3,303.00} \\ \underline{3\ 00} \downarrow \\ 303 \downarrow \\ \underline{300} \downarrow \\ 3\ 0 \downarrow \\ 0 \downarrow \\ 3\ 00 \downarrow \\ 3\ 00 \end{array}$$

Read: thirty-three and three hundredths

- 11) Fraction

$$0.95 = \frac{95}{100} = \frac{19}{20}$$

Read: ninety-five hundredths

- 12) Decimal

$$\begin{array}{r} 2.75 \\ 2\frac{3}{4} = \frac{11}{4} = 4 \overline{) 11.00} \\ \underline{8\ 0} \downarrow \\ 3\ 0 \downarrow \\ \underline{2\ 8} \downarrow \\ 20 \downarrow \\ 20 \end{array}$$

Read: two and seventy-five hundredths

13) Fraction

$$\text{seven and five thousandths} = 7\frac{5}{1,000} = 7\frac{1}{200}$$

Decimal

$$7\frac{5}{1,000} = \frac{7,005}{1,000} = 1,000 \overline{) 7,005.000}$$

$$\begin{array}{r} 7.005 \\ 1,000 \overline{) 7,005.000} \\ \underline{7,000} \\ 50 \\ \underline{0} \\ 500 \\ \underline{0} \\ 5,000 \\ \underline{5,000} \end{array}$$

14) Decimal

$$\frac{21}{250} = 250 \overline{) 0.084}$$

$$\begin{array}{r} 0.084 \\ 250 \overline{) 21.000} \\ \underline{20} \\ 1000 \\ \underline{1000} \end{array}$$

Read: eighty-four thousandths

15) Fraction

$$12.125 = 12\frac{125}{1,000} = 12\frac{1}{8}$$

Read: twelve and one hundred twenty-five thousandths

16) Fraction

$$20.09 = 20\frac{9}{100}$$

Read: twenty and nine hundredths

17) Fraction

$$\text{twenty-two and twenty-two thousandths}$$

$$= 22\frac{22}{1,000} = 22\frac{11}{500}$$

Decimal

$$22\frac{22}{1,000} = \frac{22,022}{1,000} = 1,000 \overline{) 22,022.000}$$

$$\begin{array}{r} 22.022 \\ 1,000 \overline{) 22,022.000} \\ \underline{20} \\ 2022 \\ \underline{2000} \\ 220 \\ \underline{0} \\ 2200 \\ \underline{2000} \\ 2000 \\ \underline{2000} \end{array}$$

18) Fraction

$$0.15 = \frac{15}{100} = \frac{3}{20}$$

Read: fifteen hundredths

19) Decimal

$$1,000\frac{1}{200} = \frac{200,001}{200} = 200 \overline{) 200,001.000}$$

$$\begin{array}{r} 1,000.005 \\ 200 \overline{) 200,001.000} \\ \underline{200} \\ 00 \\ \underline{00} \\ 00 \\ \underline{00} \\ 01 \\ \underline{00} \\ 10 \\ \underline{00} \\ 100 \\ \underline{100} \\ 0 \\ 1000 \\ \underline{1000} \end{array}$$

Read: one thousand and five thousandths

20) Fraction

$$\text{four thousand eighty-five and}$$

$$\text{seventy-five thousandths}$$

$$= 4,085\frac{75}{1,000} = 4,085\frac{3}{40}$$

Decimal: This conversion can be worked like #19, however this is shorter for a problem where the denominator is a power of 10.

$$4,085\frac{75}{1,000} = 4,085 + (75 \div 1,000)$$

$$= 4,085 + 0.075 = 4,085.075$$

21) $0.017 = 0.0170$

four place decimal

22) $0.2500 = 0.25$

two place decimal

$$23) \frac{75}{100} = 100 \overline{) 0.75}$$

$$\begin{array}{r} 0.75 \\ 100 \overline{) 75.00} \\ \underline{70} \\ 500 \\ \underline{500} \end{array}$$

$$24) 0.045 = \frac{45}{1,000} = \frac{9}{200}$$

$\begin{array}{c} \uparrow \uparrow \uparrow \\ \text{tenths} \\ \text{hundredths} \\ \text{thousandths} \end{array}$

25) 0.012

0.120

0.021

↑

0.120 is the largest because the 1 in the tenth place is the largest digit in the tenths place, and that is the place where the first nonzero numeral appears.

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Review Set 5 — Pages 55–56

ANSWERS

- 26) 0.635
0.6
0.063
↑
0.063 is the smallest because 0 in the tenth place is the smallest
- 27) $0.375 \neq 0.0375$
False
- 28) 2.2 grams $\neq$ 2.02 grams
False
- 29) 6.5 ounces = 6.500 ounces
True
- 30) Safe dosages include amounts greater than or equal to 0.5 gram but less than or equal to 2 grams.
Safe dosages: 0.8 gram and 1.25 grams

Review Set 5 from pages 55–56

- 1) 22.585 2) 44.177 3) 12.309 4) 11.3 5) 175.199 6) 25.007 7) 0.518 8) \$9.48 9) \$18.91 10) \$22.71 11) 6.403
12) 0.27 13) 4.15 14) 1.51 15) 10.25 16) 2.517 17) 374.35 18) 604.42 19) 27.449 20) 23.619 21) 0.697 gram
22) 66.25 milliliters 23) \$2,058.06 24) 10.3 grams 25) 8.1 hours

Solutions—Review Set 5

$$\begin{array}{r} 1) \quad \begin{array}{r} ^1 ^1 \\ 0.160 \\ 5.375 \\ 1.050 \\ +16.000 \\ \hline 22.585 \end{array} \end{array}$$

$$\begin{array}{r} 2) \quad \begin{array}{r} 7.517 \\ 3.200 \\ 0.160 \\ +33.300 \\ \hline 44.177 \end{array} \end{array}$$

$$\begin{array}{r} 3) \quad \begin{array}{r} ^2 ^{10} \\ 12.309 \\ -0.700 \\ \hline 12.309 \end{array} \end{array}$$

$$\begin{array}{r} 4) \quad \begin{array}{r} ^1 ^1 \\ 5.125 \\ 6.025 \\ +0.150 \\ \hline 11.300 \\ 11.300 = 11.3 \end{array} \end{array}$$

$$\begin{array}{r} 5) \quad \begin{array}{r} 175.100 \\ +0.099 \\ \hline 175.199 \end{array} \end{array}$$

$$\begin{array}{r} 6) \quad \begin{array}{r} ^9 \\ 125.000 \\ 25.200 \\ -0.193 \\ \hline 25.007 \end{array} \end{array}$$

$$\begin{array}{r} 7) \quad \begin{array}{r} ^7 ^{10} \\ 0.580 \\ -0.062 \\ \hline 0.518 \end{array} \end{array}$$

$$\begin{array}{r} 8) \quad \begin{array}{r} ^9 ^{10}^{10} \\ \$10.100 \\ -0.62 \\ \hline \$9.48 \end{array} \end{array}$$

$$\begin{array}{r} 9) \quad \begin{array}{r} ^8 ^9 ^{10} \\ \$19.00 \\ -0.09 \\ \hline \$18.91 \end{array} \end{array}$$

$$\begin{array}{r} 10) \quad \begin{array}{r} ^1 ^2 \\ \$5.05 \\ 0.17 \\ +17.49 \\ \hline \$22.71 \end{array} \end{array}$$

$$\begin{array}{r} 11) \quad \begin{array}{r} ^1 ^1 \\ 4.000 \\ 1.980 \\ 0.420 \\ +0.003 \\ \hline 6.403 \end{array} \end{array}$$

$$\begin{array}{r} 12) \quad \begin{array}{r} ^2 ^{10} \\ 0.30 \\ -0.03 \\ \hline 0.27 \end{array} \end{array}$$

$$\begin{array}{r} 13) \quad \begin{array}{r} ^2 ^{10} \\ 16.30 \\ -12.15 \\ \hline 4.15 \end{array} \end{array}$$

$$\begin{array}{r} 14) \quad \begin{array}{r} ^1 ^{14} ^{10} \\ 2.50 \\ -0.99 \\ \hline 1.51 \end{array} \end{array}$$

$$\begin{array}{r} 15) \quad \begin{array}{r} ^1 ^1 \\ 5.00 \\ 2.50 \\ 0.05 \\ 0.15 \\ +2.55 \\ \hline 10.25 \end{array} \end{array}$$

$$\begin{array}{r} 16) \quad \begin{array}{r} ^1 \\ 0.030 \\ 0.160 \\ +2.327 \\ \hline 2.517 \end{array} \end{array}$$

$$\begin{array}{r} 17) \quad \begin{array}{r} 699\,910 \\ \cancel{700,000} \\ -325.65 \\ \hline 374.35 \end{array} \end{array}$$

$$\begin{array}{r} 18) \quad \begin{array}{r} 4\,13 \\ 64\cancel{5}.32 \\ -40.90 \\ \hline 604.42 \end{array} \end{array}$$

$$\begin{array}{r} 19) \quad \begin{array}{r} 1\,1 \\ 18.000 \\ 2.350 \\ 7.006 \\ +0.093 \\ \hline 27.449 \end{array} \end{array}$$

$$\begin{array}{r} 20) \quad \begin{array}{r} 1 \\ 13.529 \\ +10.090 \\ \hline 23.619 \end{array} \end{array}$$

$$\begin{array}{r} 21) \quad \begin{array}{r} 0.100 \\ 0.125 \\ 0.001 \\ 0.350 \\ +0.121 \\ \hline 0.697 \text{ grams} \end{array} \end{array}$$

$$\begin{array}{r} 22) \quad \begin{array}{r} 2\,1 \\ 7.50 \\ 15.00 \\ 10.00 \\ 15.00 \\ 6.25 \\ +12.50 \\ \hline 66.25 \text{ milliliters} \end{array} \end{array}$$

$$\begin{array}{r} 23) \quad \begin{array}{r} 6\,10\,3\,13 \\ \$16,\cancel{700},\cancel{43} \\ -14,651.37 \\ \hline \$2,058.06 \end{array} \end{array}$$

$$\begin{array}{r} 24) \quad \begin{array}{r} 14.8 \\ -4.5 \\ \hline 10.3 \text{ grams} \end{array} \end{array}$$

$$\begin{array}{r} 25) \quad \begin{array}{r} 3 \text{ h } 20 \text{ min} \\ 40 \text{ min} \\ 3 \text{ h } 30 \text{ min} \\ 24 \text{ min} \\ + 12 \text{ min} \\ \hline 6 \text{ h } 126 \text{ min} \end{array} \quad \begin{array}{l} 126 \text{ min} = 2 \text{ h } 6 \text{ min} \\ 6 \text{ h } 126 \text{ min} = 6 \text{ h} + 2 \text{ h } 6 \text{ min} = 8 \text{ h } 6 \text{ min} = \\ 1 \text{ h} = 60 \text{ min} \\ 8 \text{ h } 6 \text{ min} = 8\frac{6}{60} = 8\frac{1}{10} = 8.1 \text{ hours} \end{array}$$

Review Set 6 from page 60

- 1) 5.83 2) 2.2 3) 42.75 4) 0.15 5) 403.14 6) 75,100.75 7) 32.86 8) 2.78 9) 348.58 10) 0.02 11) 400 12) 3.74 13) 5
 14) 2.98 15) 4,120 16) 5.45 17) 272.67 18) 1.5 19) 50,020 20) 300 21) $562.50. = 56,250$ 22) $16.0. = 160$
 23) $.025. = 0.025$ 24) $.032.005 = 0.032005$ 25) $.00.125 = 0.00125$ 26) $23.2.5 = 232.5$ 27) $71.7.717 = 71.7717$
 28) $83.1.6 = 831.6$ 29) $0.33. = 33$ 30) $14.106. = 14,106$

Solutions—Review Set 6

$$\begin{array}{r} 1) \quad \begin{array}{r} 3 \\ 1.16 \\ \times 5.03 \\ \hline 348 \\ 0000 \\ 58000 \\ \hline 5.8348 = 5.83 \end{array} \end{array}$$

$$\begin{array}{r} 2) \quad \begin{array}{r} 2 \\ 0.314 \\ \times 7 \\ \hline 2.198 = 2.20 = 2.2 \end{array} \end{array}$$

$$\begin{array}{r} 3) \quad \begin{array}{r} 3 \\ 1.71 \\ \times 25 \\ \hline 8\,55 \\ 34\,20 \\ \hline 42.75 \end{array} \end{array}$$

$$\begin{array}{r} 4) \quad \begin{array}{r} 1 \\ 3.002 \\ \times 0.05 \\ \hline 0.15010 = 0.15 \end{array} \end{array}$$

$$\begin{array}{r} 5) \quad \begin{array}{r} 16.1 \\ \times 25.04 \\ \hline 644 \\ 0000 \\ 80500 \\ 322000 \\ \hline 403.144 = 403.14 \end{array} \end{array}$$

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Review Set 6 — Page 60

ANSWERS

$$\begin{array}{r}
 6) \quad 75.1 \\
 \times 1,000.01 \\
 \hline
 751 \\
 0000 \\
 00000 \\
 000000 \\
 0000000 \\
 75100000 \\
 \hline
 75,100.751 = 75,100.75
 \end{array}$$

$$\begin{array}{r}
 7) \quad 16.03 \\
 \times 2.05 \\
 \hline
 8015 \\
 0000 \\
 320600 \\
 \hline
 32.8615 = 32.86
 \end{array}$$

$$\begin{array}{r}
 8) \quad 55.50 \\
 \times 0.05 \\
 \hline
 2.7750 = 2.78
 \end{array}$$

$$\begin{array}{r}
 9) \quad 23.2 \\
 \times 15.025 \\
 \hline
 1160 \\
 4640 \\
 00000 \\
 1160000 \\
 2320000 \\
 \hline
 348.5800 = 348.58
 \end{array}$$

$$\begin{array}{r}
 10) \quad 1.14 \\
 \times 0.014 \\
 \hline
 456 \\
 114 \\
 \hline
 0.01596 = 0.02
 \end{array}$$

$$\begin{array}{r}
 11) \quad 16 \div 0.04 = 400 \\
 0.04 \overline{) 16.00} \\
 \underline{16} \downarrow \\
 00 \\
 \underline{00} \\
 0
 \end{array}$$

$$\begin{array}{r}
 12) \quad 25.3 \div 6.76 = 3.74 \\
 6.76 \overline{) 25.30.000} \\
 \underline{20} \downarrow \\
 5020 \\
 \underline{4732} \downarrow \\
 2880 \\
 \underline{2704} \downarrow \\
 1760 \\
 \underline{1352}
 \end{array}$$

$$\begin{array}{r}
 13) \quad 0.02 \div 0.004 = 5 \\
 0.004 \overline{) 0.020} \\
 \underline{20} \\
 0
 \end{array}$$

$$\begin{array}{r}
 14) \quad 45.5 \div 15.25 = 2.98 \\
 15.25 \overline{) 45.50.000} \\
 \underline{30} \downarrow \\
 1500 \\
 \underline{1372} \downarrow \\
 12750 \\
 \underline{12200} \downarrow \\
 5500 \\
 \underline{4575} \\
 925
 \end{array}$$

$$\begin{array}{r}
 15) \quad 515 \div 0.125 = 4,120 \\
 0.125 \overline{) 515.000} \\
 \underline{500} \downarrow \\
 150 \\
 \underline{125} \downarrow \\
 250 \\
 \underline{250} \downarrow \\
 00
 \end{array}$$

$$\begin{array}{r}
 16) \quad 73 \div 13.40 = 5.45 \\
 13.40 \overline{) 73.00.000} \\
 \underline{67} \downarrow \\
 6000 \\
 \underline{5360} \downarrow \\
 6400 \\
 \underline{5360} \downarrow \\
 10400 \\
 \underline{9380} \\
 1020
 \end{array}$$

$$\begin{array}{r}
 17) \quad 16.36 \div 0.06 = 272.67 \\
 0.06 \overline{) 16.36.000} \\
 \underline{12} \downarrow \\
 43 \\
 \underline{42} \downarrow \\
 16 \\
 \underline{12} \downarrow \\
 40 \\
 \underline{36} \downarrow \\
 40 \\
 \underline{36} \\
 4
 \end{array}$$

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Practice Problems — Chapter 1 — Pages 60–62

ANSWERS

$$\begin{array}{r} 9) \quad \frac{7}{9} - \frac{5}{18} \quad \frac{14}{18} \\ \quad \quad \quad - \frac{5}{18} \\ \hline \quad \quad \quad \frac{9}{18} = \frac{1}{2} \end{array}$$

$$\begin{array}{r} 10) \quad 5\frac{1}{6} - 2\frac{7}{8} \quad 5\frac{1}{6} = 5\frac{4}{24} = 4\frac{28}{24} \\ \quad \quad \quad - 2\frac{7}{8} = -2\frac{21}{24} = -2\frac{21}{24} \\ \hline \quad \quad \quad 2\frac{7}{24} \end{array}$$

$$11) \quad \frac{1}{9} \times \frac{7}{12} = \frac{7}{27}$$

$$12) \quad 1\frac{1}{2} \times 6\frac{3}{4} = \frac{3}{2} \times \frac{27}{4} = \frac{81}{8} = 10\frac{1}{8}$$

$$13) \quad 7\frac{1}{5} \div 1\frac{7}{10} = \frac{36}{5} \div \frac{17}{10} = \frac{36}{5} \times \frac{10}{17} = \frac{72}{17} = 4\frac{4}{17}$$

$$14) \quad \frac{3}{16} + \frac{3}{10} = \frac{15}{80} + \frac{24}{80} = \frac{39}{80}$$

$$15) \quad 8\frac{4}{11} \div 1\frac{2}{3} = \frac{92}{11} \div \frac{5}{3} = \frac{92}{11} \times \frac{3}{5} = \frac{276}{55} = 5\frac{1}{55}$$

$$16) \quad \frac{9\frac{1}{2}}{1\frac{4}{5}} = \frac{\frac{19}{2}}{\frac{9}{5}} = \frac{19}{2} \div \frac{9}{5} = \frac{19}{2} \times \frac{5}{9} = \frac{95}{18} = 5\frac{5}{18}$$

$$17) \quad \frac{13\frac{1}{3}}{4\frac{6}{13}} = \frac{\frac{40}{3}}{\frac{58}{13}} = \frac{40}{3} \div \frac{58}{13} = \frac{40}{3} \times \frac{13}{58} = \frac{260}{87} = 2\frac{86}{87}$$

$$18) \quad \frac{\frac{1}{10}}{\frac{2}{3}} = \frac{1}{10} \div \frac{2}{3} = \frac{1}{10} \times \frac{3}{2} = \frac{3}{20}$$

$$19) \quad \frac{1}{125} \times \frac{1}{25} = \frac{1}{3125}$$

$$\begin{aligned} 20) \quad \frac{7}{8} \div \frac{3\frac{1}{2}}{1\frac{1}{3}} &= \left(\frac{7}{8} \div \frac{1}{3}\right) \div \left(3\frac{1}{2} \div \frac{1}{3}\right) \\ &= \left(\frac{7}{8} \times \frac{3}{1}\right) \div \left(\frac{7}{2} \times \frac{3}{1}\right) \\ &= \frac{21}{8} \div \frac{21}{2} \\ &= \frac{21}{8} \times \frac{2}{21} \\ &= \frac{2}{8} \\ &= \frac{1}{4} \end{aligned}$$

$$21) \quad \frac{20}{35} \times 3 = \frac{60}{35} = 1\frac{25}{35} = 1\frac{5}{7}$$

$$22) \quad 2\frac{1}{4} \times 7\frac{1}{8} = \frac{9}{4} \times \frac{57}{8} = \frac{513}{32} = 16\frac{1}{32}$$

$$\begin{array}{r} 23) \quad 11.33 + 29.16 + 19.78 \quad \begin{array}{r} 2 \quad 1 \quad 1 \\ 11.33 \\ 29.16 \\ + 19.78 \\ \hline 60.27 \end{array} \end{array}$$

$$\begin{array}{r} 24) \quad 93.712 - 26.97 \quad \begin{array}{r} 8 \quad 12 \quad 16 \quad 11 \\ 93.712 \\ - 26.970 \\ \hline 66.742 = 66.74 \end{array} \end{array}$$

$$\begin{array}{r} 25) \quad 43.69 - 0.7083 \quad \begin{array}{r} 2 \quad 16 \quad 8 \quad 9 \quad 10 \\ 43.69 \\ - 0.7083 \\ \hline 42.9817 = 42.98 \end{array} \end{array}$$

$$\begin{array}{r} 26) \quad 66.4 \times 72.8 \quad \begin{array}{r} 66.4 \\ \times 72.8 \\ \hline 5312 \\ 13280 \\ \hline 464800 \\ 4833.92 = 4,833.92 \end{array} \end{array}$$

$$\begin{array}{r} 27) \quad \begin{array}{r} 360 \\ \times 0.53 \\ \hline 1080 \\ 18000 \\ \hline 190.80 = 190.8 \end{array} \end{array}$$

$$\begin{array}{r} 28) \quad 268.4 \div 14 = 19.17 \quad \begin{array}{r} 19.171 \\ 14 \overline{) 268.400} \\ \underline{14} \\ 128 \\ \underline{126} \\ 24 \\ \underline{14} \\ 100 \\ \underline{98} \\ 20 \end{array} \end{array}$$

$$\begin{array}{r} 29) \quad 10.10 - 0.62 \quad \begin{array}{r} 9 \quad 10 \quad 10 \\ 10.10 \\ - 0.62 \\ \hline 9.48 \end{array} \end{array}$$

$$\begin{array}{r} 30) \quad 5 + 2.5 + 0.05 + 0.15 \quad \begin{array}{r} 5.00 \\ 2.50 \\ 0.05 \\ + 0.15 \\ \hline 7.70 = 7.7 \end{array} \end{array}$$

$$\begin{array}{r} 31) \quad 1.71 \times 25 \quad \begin{array}{r} 1.71 \\ \times 25 \\ \hline 855 \\ 3420 \\ \hline 42.75 \end{array} \end{array}$$

32)

$$45 \div 0.15 = 300$$

$$\begin{array}{r} 300. \\ 0.15 \overline{) 45.00} \\ \underline{45} \\ 00 \\ \underline{00} \\ 00 \end{array}$$

33)

$$2,974 \div 0.23 = 12,930.43$$

$$\begin{array}{r} 12930.434 \\ 0.23 \overline{) 2,974.0000} \\ \underline{23} \\ 67 \\ \underline{46} \\ 214 \\ \underline{207} \\ 70 \\ \underline{69} \\ 10 \\ \underline{0} \\ 100 \\ \underline{92} \\ 80 \\ \underline{69} \\ 110 \\ \underline{92} \\ 18 \end{array}$$

34)

$$51.21 \div 0.016 = 3,200.63$$

$$\begin{array}{r} 3200.625 \\ 0.016 \overline{) 51.210000} \\ \underline{48} \\ 32 \\ \underline{32} \\ 1 \\ \underline{0} \\ 10 \\ \underline{0} \\ 100 \\ \underline{96} \\ 40 \\ \underline{32} \\ 80 \\ \underline{80} \\ 0 \end{array}$$

35)

$$0.74 \div 0.37 = 2$$

$$\begin{array}{r} 2. \\ 0.37 \overline{) 0.74} \\ \underline{74} \\ 0 \end{array}$$

36)

$$1.5 + 146.73 + 1.9 + 0.832$$

$$\begin{array}{r} 1.500 \\ 146.730 \\ 1.900 \\ + 0.832 \\ \hline 150.962 = 150.96 \end{array}$$

37)

$$9.716 \times 1,000 = 9,716$$

38)

$$50.25 \div 100 = 0.5025$$

39)

$$0.25 \times 100 = 25$$

40)

$$5.75 \times 1,000 = 5,750$$

41)

$$0.25 \div 10 = 0.025$$

42)

$$11.525 \times 10 = 115.25$$

43)

$$3\frac{1}{2} \text{ fluid ounces/feeding} \times 6 \text{ feedings/day} = 21 \text{ fluid ounces/day and}$$

$$21 \text{ fluid ounces/day} \times 7 \text{ days/week} = 147 \text{ fluid ounces in one week}$$

44)

$$\frac{3}{8} \times \frac{368}{1} = \frac{1,104}{8} = 138 \text{ nurses}$$

$$\frac{1}{8} \times \frac{368}{1} = \frac{368}{8} = 46 \text{ maintenance/cleaners}$$

$$\frac{1}{4} \times \frac{368}{1} = \frac{368}{4} = 92 \text{ technicians and 92 others}$$

45)

$$\text{False } 1\frac{2}{32} = \frac{34}{32} = 1.0625$$

Normal range of 1.01 to 1.025

1.0625 is not within the normal range.

(It is higher than the normal range.)

$$\begin{array}{r} 1.0625 \\ 32 \overline{) 34.0000} \\ \underline{32} \\ 200 \\ \underline{192} \\ 80 \\ \underline{64} \\ 160 \\ \underline{160} \\ 0 \end{array}$$

46)

$$\begin{array}{r} \$20.43 \\ \times 40 \\ \hline \end{array}$$

\$817.20 earned for 40 hours

Twice the hourly rate = $\$20.43 \times 2 = \40.86 per overtime hour

$$\begin{array}{r} \$40.86 \\ \times 6.50 \\ \hline \end{array}$$

\$265.59 = \$265.59 earned at twice the hourly rate for 6.5 overtime hours.

Total pay:

$$\begin{array}{r} \$817.20 \\ + 265.59 \\ \hline \end{array}$$

\$1,082.79

47)

A case of 12 boxes with 12 catheters per box = 144 catheters

By the case: $\$975 \div 144 = \6.77 per catheterBy the box: $\$98.76 \div 12 = \8.23 per catheter

\$8.23

- 6.77

\$1.46 savings per catheter

$$48) \quad 0.065 \text{ gram/ounce} \times 4.75 \text{ ounces} = 0.31 \text{ gram}$$

$$49) \quad 1,200 \text{ milliliters} \times \frac{2}{3} = \frac{1,200}{1} \times \frac{2}{3} = 800 \text{ milliliters}$$

$$50) \quad \begin{array}{r} 5 \text{ } 16 \\ 6.65 \text{ kilograms} \\ - 3.70 \text{ kilograms} \\ \hline 2.95 \text{ kilograms gained} \end{array}$$

Review Set 7 from pages 67–68

- 1) $\frac{1}{50}$ 2) $\frac{3}{5}$ 3) $\frac{1}{3}$ 4) $\frac{4}{7}$ 5) $\frac{3}{4}$ 6) 0.5 7) 0.15 8) 0.14 9) 0.07 10) 0.24 11) 25% 12) 40% 13) 12.5% 14) 70% 15) 50%
 16) $\frac{9}{20}$ 17) $\frac{3}{5}$ 18) $\frac{1}{200}$ 19) $\frac{1}{100}$ 20) $\frac{2}{3}$ 21) 0.03 22) 0.05 23) 0.06 24) 0.33 25) 0.01 26) 4:25 27) 1:4 28) 1:2 29) 9:20
 30) 3:50 31) 0.9 32) $\frac{1}{5}$ 33) 0.25% 34) 0.5 35) $\frac{1}{100}$

Solutions—Review Set 7

$$1) \quad 3:150 = \frac{3}{150} = \frac{\cancel{3}}{\cancel{150}} = \frac{1}{50}$$

$$2) \quad 6:10 = \frac{6}{10} = \frac{\cancel{6}}{\cancel{10}} = \frac{3}{5}$$

$$3) \quad 0.05:0.15 = \frac{0.05}{0.15} = \frac{1}{3}$$

$$4) \quad 4:7 = \frac{4}{7}$$

$$5) \quad 6:8 = \frac{6}{8} = \frac{\cancel{6}}{\cancel{8}} = \frac{3}{4}$$

$$6) \quad 20:40 = \frac{20}{40} = \frac{\cancel{20}}{\cancel{40}} = \frac{1}{2} = 2 \overline{)1.0} = 0.5$$

$$7) \quad \frac{1}{1,000} : \frac{1}{150} = \frac{\frac{1}{1,000}}{\frac{1}{150}} = \frac{1}{1,000} \div \frac{1}{150} = \frac{1}{1,000} \times \frac{150}{1} = \frac{15}{100} = 0.15 = 15\%$$

$$8) \quad 0.12:0.88 = \frac{0.12}{0.88} = 0.136 = 13.6\%$$

$$9) \quad 0.3:4.5 = \frac{0.3}{4.5} = 0.066 = 6.6\%$$

$$10) \quad 1\frac{1}{2} : 6\frac{2}{9} = \frac{1\frac{1}{2}}{6\frac{2}{9}} = \frac{\frac{3}{2}}{\frac{56}{9}} = \frac{3}{2} \times \frac{9}{56} = \frac{27}{112} = 112 \overline{)27.000} = 0.241 = 24.1\%$$

$$11) \quad 12:48 = \frac{12}{48} = 0.25; 0.25 = \frac{25}{100} = 25\%$$

$$12) \quad 2:5 = \frac{2}{5} = 0.4; 0.4 = 0.40 = 40\%$$

$$13) \quad 0.08:0.64 = \frac{0.08}{0.64} = \frac{1}{8} = 0.125; 0.125 = 0.125 = 12.5\%$$

$$14) \quad 7:10 = \frac{7}{10} = \frac{70}{100} = 70\%$$

$$15) \quad 50:100 = \frac{50}{100} = 50\%$$

$$16) \quad 45\% = \frac{45}{100} = \frac{9}{20}$$

$$17) \quad 60\% = \frac{60}{100} = \frac{3}{5}$$

$$18) \quad 0.5\% = \frac{0.5}{100} = \frac{5}{1,000} = \frac{1}{200}$$

$$19) \quad 1\% = \frac{1}{100}$$

$$20) \quad 66\frac{2}{3}\% = \frac{66\frac{2}{3}}{100} = \frac{\frac{200}{3}}{100} = \frac{200}{3} \div 100 = \frac{200}{3} \times \frac{1}{100} = \frac{2}{3}$$

$$21) \quad 2.94\% = \frac{2.94}{100} = 2.94 \div 100 = 0.0294 = 0.0294 = 0.03$$

$$22) \quad 4.5\% = \frac{4.5}{100} = 4.5 \div 100 = 0.045 = 0.045 = 0.05$$

$$23) \quad 6.32\% = \frac{6.32}{100} = 6.32 \div 100 = 0.0632 = 0.0632 = 0.06$$

$$24) \quad 33\% = \frac{33}{100} = 33 \div 100 = 0.\overline{33} = 0.33$$

$$25) \quad 0.9\% = \frac{0.9}{100} = 0.9 \div 100 = 0.\overline{00}9 = 0.009 = 0.01$$

$$26) \quad 16\% = \frac{16}{100} = \frac{4}{25} = 4:25$$

$$27) \quad 25\% = \frac{25}{100} = \frac{1}{4} = 1:4$$

$$28) \quad 50\% = \frac{50}{100} = \frac{1}{2} = 1:2$$

$$29) \quad 45\% = \frac{45}{100} = \frac{9}{20} = 9:20$$

$$30) \quad 6\% = \frac{6}{100} = \frac{3}{50} = 3:50$$

31) Convert to decimals and compare:

$$0.9\% = 0.009$$

$$0.9 = 0.900 \text{ (largest)}$$

$$1:9 = 0.111$$

$$1:90 = 0.011$$

32) Convert to decimals and compare:

$$0.05 = 0.05 = 0.050$$

$$\frac{1}{5} = 0.2 = 0.200 \text{ (largest)}$$

$$0.025 = 0.025 = 0.025$$

$$1:25 = 0.04 = 0.040$$

↑
Compare this place
for the largest number.
The first nonzero digit
appears in the tenths
place.

33) Convert to decimals and compare:

$$0.0125\% = 0.000125 = 0.000125$$

$$0.25\% = 0.0025 = 0.002500 \text{ (largest)}$$

$$0.1\% = 0.001 = 0.001000$$

$$0.02\% = 0.0002 = 0.000200$$

↑
Compare this place
for the largest number.
The first nonzero digit
appears in the thousandths
place.

34) Convert to decimals and compare:

$$\frac{1}{150} = 0.0067$$

$$\frac{1}{300} = 0.0033$$

$$0.5 = 0.5000 \text{ (largest)}$$

$$\frac{2}{3}\% = 0.0067$$

↑
Compare this place
for the largest number.
The first nonzero digit
appears in the tenths
place.

35) Convert to decimals and compare:

$$1:1,000 = 0.001 = 0.0010$$

$$0.0001 = 0.0001 = 0.0001$$

$$\frac{1}{100} = 0.01 = 0.0100 \text{ (largest)}$$

$$0.1\% = 0.001 = 0.0010$$

↑
Compare this place
for the largest number.
The first nonzero digit
appears in the hundredths
place.

Review Set 8 from pages 71–72

1) 3 2) 3.3 3) 1.25 4) 5.33 5) 0.56 6) 1.8 7) 0.64 8) 12.6 9) 40 10) 0.48 11) 1 12) 0.96 13) 4.5 14) 0.94 15) 10
16) 0.4 17) 1.5 18) 10 19) 20 20) 1.8

Solutions—Review Set 8

$$\begin{aligned} 1) \quad & \frac{75}{125} \times 5 = X \\ & \frac{75}{125} \times \frac{5}{1} = X \\ & \frac{3}{25} \times \frac{5}{1} = X \\ & X = 3 \end{aligned}$$

$$\begin{aligned} 2) \quad & \frac{3}{4} \times 2.2 = X \\ & \frac{3}{4} \div \frac{1}{2} \times \frac{2.2}{1} = X \\ & \frac{3}{4} \times \frac{2}{1} \times \frac{2.2}{1} = X \\ & \frac{6.6}{2} = X \\ & X = 3.3 \end{aligned}$$

$$\begin{aligned}
 3) \quad & \frac{150}{300} \times 2.5 = X \\
 & \frac{\cancel{150}^1}{\cancel{300}_2} \times \frac{2.5}{1} = X \\
 & \frac{2.5}{2} = X \\
 & X = 125
 \end{aligned}$$

$$\begin{aligned}
 4) \quad & \frac{40\%}{60\%} \times 8 = X \\
 & \frac{\cancel{0.4}^2}{\cancel{0.6}_3} \times 8 = X \\
 & \frac{2}{3} \times \frac{8}{1} = X \\
 & \frac{16}{3} = X \\
 & X = 5.33\bar{3} \\
 & X = 5.33
 \end{aligned}$$

$$\begin{aligned}
 5) \quad & \frac{0.35}{2.5} \times 4 = X \\
 & \frac{\cancel{0.35}^7}{\cancel{2.5}_{50}} \times 4 = X \\
 & \frac{7}{50} \times \frac{4}{1} = X \\
 & \frac{28}{50} = X \\
 & X = 0.56
 \end{aligned}$$

$$\begin{aligned}
 6) \quad & \frac{0.15}{0.1} \times 1.2 = X \\
 & \frac{\cancel{0.15}^3}{\cancel{0.10}_2} \times \frac{1.2}{1} = X \\
 & \frac{3}{2} \times \frac{1.2}{1} = X \\
 & \frac{3.6}{2} = X \\
 & X = 1.8
 \end{aligned}$$

$$\begin{aligned}
 7) \quad & \frac{0.4}{2.5} \times 4 = X \\
 & \frac{\cancel{0.4}^1}{\cancel{2.5}_5} \times \frac{4}{1} = X \\
 & \frac{1.6}{2.5} = X \\
 & \frac{16}{25} = X \\
 & X = 0.64
 \end{aligned}$$

$$\begin{aligned}
 8) \quad & \frac{1,200,000}{400,000} \times 4.2 = X \\
 & \frac{\cancel{1,200,000}^3}{\cancel{400,000}_1} \times 4.2 = X \\
 & \frac{3}{1} \times \frac{4.2}{1} = X \\
 & \frac{12.6}{1} = X \\
 & X = 12.6
 \end{aligned}$$

$$\begin{aligned}
 9) \quad & \frac{\frac{2}{3}}{\frac{1}{6}} \times 10 = X \\
 & \frac{2}{3} \div \frac{1}{6} \times \frac{10}{1} = X \\
 & \frac{2}{3} \times \frac{\cancel{6}^2}{1} \times \frac{10}{1} = X \\
 & X = 40
 \end{aligned}$$

$$\begin{aligned}
 10) \quad & \frac{30}{50} \times 0.8 = X \\
 & \frac{\cancel{30}^3}{\cancel{50}_{50}} \times 0.8 = X \\
 & \frac{3}{5} \times \frac{0.8}{1} = X \\
 & \frac{2.4}{5} = X \\
 & X = 0.48
 \end{aligned}$$

$$\begin{aligned}
 11) \quad & \frac{200,000}{300,000} \times 1.5 = X \\
 & \frac{\cancel{200,000}^2}{\cancel{300,000}_3} \times 1.5 = X \\
 & \frac{2}{3} \times \frac{1.5}{1} = X \\
 & \frac{3}{3} = X \\
 & X = 1
 \end{aligned}$$

$$\begin{aligned}
 12) \quad & \frac{0.08}{0.1} \times 1.2 = X \\
 & \frac{\cancel{0.08}^8}{\cancel{0.1}_1} \times \frac{1.2}{1} = X \\
 & \frac{0.096}{0.1} = X \\
 & \frac{96}{100} = X \\
 & X = 0.96
 \end{aligned}$$

$$\begin{aligned}
 13) \quad & \frac{7.5}{5} \times 3 = X \\
 & \frac{\cancel{7.5}^{1.5}}{\cancel{5}_1} \times \frac{3}{1} = X \\
 & X = 4.5
 \end{aligned}$$

$$\begin{aligned}
 14) \quad & \frac{250,000}{2,000,000} \times 7.5 = X \\
 & \frac{\cancel{250,000}^1}{\cancel{2,000,000}_8} \times 7.5 = X \\
 & \frac{1}{8} \times \frac{7.5}{1} = X \\
 & \frac{7.5}{8} = X \\
 & X = 0.9375 \\
 & X = 0.94
 \end{aligned}$$

$$15) \quad \frac{600}{150} \times 2.5 = X$$

$$\frac{\overset{4}{\cancel{600}}}{\underset{1}{\cancel{150}}} \times \frac{2.5}{1} = X$$

$$X = 10$$

$$16) \quad \frac{600,000}{750,000} \times 0.5 = X$$

$$\frac{\overset{12}{\cancel{600,000}}}{\underset{15}{\cancel{750,000}}} \times \frac{0.5}{1} = X$$

$$\frac{12}{15} \times \frac{0.5}{1} = X$$

$$\frac{6}{15} = X$$

$$X = 0.4$$

$$17) \quad \frac{75\%}{60\%} \times 1.2 = X$$

$$\frac{0.75}{0.60} \times \frac{1.2}{1} = X$$

$$\frac{\overset{5}{\cancel{75}}}{\underset{4}{\cancel{60}}} \times \frac{1.2}{1} = X$$

$$\frac{5}{4} \times \frac{1.2}{1} = X$$

$$\frac{6}{4} = X$$

$$X = 1.5$$

$$18) \quad \frac{0.25}{0.125} \times 5 = X$$

$$\frac{0.25}{0.125} \times \frac{5}{1} = X$$

$$\frac{1.25}{0.125} = X$$

$$\frac{1250}{125} = X$$

$$X = 10$$

$$19) \quad \frac{1,000,000}{250,000} \times 5 = X$$

$$\frac{\overset{4}{\cancel{1,000,000}}}{\underset{1}{\cancel{250,000}}} \times \frac{5}{1} = X$$

$$X = 20$$

$$20) \quad \frac{\frac{1}{100}}{\frac{1}{150}} \times 1.2 = X$$

$$\frac{1}{100} \div \frac{1}{150} \times \frac{1.2}{1} = X$$

$$\frac{1}{100} \times \frac{150}{1} \times \frac{1.2}{1} = X$$

$$\frac{1}{2} \times \frac{3}{1} \times \frac{1.2}{1} = X$$

$$\frac{3.6}{2} = X$$

$$X = 1.8$$

Review Set 9 from pages 75–76

- 1) 0.25 2) 1 3) 0.56 4) 1,000 5) 0.7 6) 8 7) 21.43 8) 500 9) 200 10) 10.5 11) 3 12) 0.63 13) 10 14) 0.67 15) 1.25
 16) 31.25 17) 16.67 18) 240 19) 0.75 20) 2.27 21) 1 22) 6 23) 108 nurses 24) 72 calories 25) 81.82 milligrams/hour

Solutions—Review Set 9

$$1) \quad \frac{1,000}{2} = \frac{125}{X}$$

$$\frac{1,000}{2} \times \frac{125}{X} = \frac{125}{X} \times \frac{1,000}{2}$$

$$1,000X = 250$$

$$\frac{1,000X}{1,000} = \frac{250}{1,000}$$

$$X = 0.25$$

$$4) \quad \frac{0.5}{2} = \frac{250}{X}$$

$$0.5X = 500$$

$$\frac{0.5X}{0.5} = \frac{500}{0.5}$$

$$X = 1,000$$

$$2) \quad \frac{500}{2} = \frac{250}{X}$$

$$\frac{500}{2} \times \frac{250}{X} = \frac{250}{X} \times \frac{500}{2}$$

$$500X = 500$$

$$\frac{500X}{500} = \frac{500}{500}$$

$$X = 1$$

$$5) \quad \frac{75}{1.5} = \frac{35}{X}$$

$$\frac{75}{1.5} \times \frac{35}{X} = \frac{35}{X} \times \frac{75}{1.5}$$

$$75X = 52.5$$

$$\frac{75X}{75} = \frac{52.5}{75}$$

$$X = 0.7$$

$$3) \quad \frac{500}{1} = \frac{280}{X}$$

$$\frac{500}{1} \times \frac{280}{X} = \frac{280}{X} \times \frac{500}{1}$$

$$500X = 280$$

$$\frac{500X}{500} = \frac{280}{500}$$

$$X = 0.56$$

$$\begin{aligned}
 6) \quad & \frac{40}{X} \times 12 = 60 \\
 & \frac{40}{X} \times \frac{12}{1} = 60 \\
 & \frac{480}{X} \times \frac{60}{1} \\
 & 60X = 480 \\
 & \frac{60X}{60} = \frac{480}{60} \\
 & X = 8
 \end{aligned}$$

$$\begin{aligned}
 7) \quad & \frac{10}{X} \times 60 = 28 \\
 & \frac{10}{X} \times \frac{60}{1} = 28 \\
 & \frac{600}{X} = \frac{28}{1} \\
 & \frac{600}{X} \times \frac{28}{1} \\
 & 28X = 600 \\
 & \frac{28X}{28} = \frac{600}{28} \\
 & X = 21.429 \\
 & X = 21.43
 \end{aligned}$$

$$\begin{aligned}
 8) \quad & \frac{2}{2,000} \times X = 0.5 \\
 & \frac{2}{2,000} \times \frac{X}{1} = \frac{0.5}{1} \\
 & \frac{2X}{2,000} = \frac{0.5}{1} \\
 & \frac{2X}{2,000} \times \frac{0.5}{1} \\
 & 2X = 1,000 \\
 & \frac{2X}{2} = \frac{1,000}{2} \\
 & X = 500
 \end{aligned}$$

$$\begin{aligned}
 9) \quad & \frac{15}{500} \times X = 6 \\
 & \frac{15X}{500} \times \frac{6}{1} \\
 & 15X = 3,000 \\
 & \frac{15X}{15} = \frac{3,000}{15} \\
 & X = 200
 \end{aligned}$$

$$\begin{aligned}
 10) \quad & \frac{5}{X} = \frac{10}{21} \\
 & \frac{5}{X} \times \frac{10}{21} \\
 & 10X = 105 \\
 & \frac{10X}{10} = \frac{105}{10} \\
 & X = 10.5
 \end{aligned}$$

$$\begin{aligned}
 11) \quad & \frac{250}{1} = \frac{750}{X} \\
 & \frac{250}{1} \times \frac{750}{X} \\
 & 250X = 750 \\
 & \frac{250X}{250} = \frac{750}{250} \\
 & X = 3
 \end{aligned}$$

$$\begin{aligned}
 12) \quad & \frac{80}{5} = \frac{10}{X} \\
 & \frac{80}{5} \times \frac{10}{X} \\
 & 80X = 50 \\
 & \frac{80X}{80} = \frac{50}{80} \\
 & X = 0.625 \\
 & X = 0.63
 \end{aligned}$$

$$\begin{aligned}
 13) \quad & \frac{5}{20} = \frac{X}{40} \\
 & \frac{5}{20} \times \frac{X}{40} \\
 & 20X = 200 \\
 & \frac{20X}{20} = \frac{200}{20} \\
 & X = 10
 \end{aligned}$$

$$\begin{aligned}
 14) \quad & \frac{1}{100} = \frac{1}{150} \\
 & \frac{1}{100} \times \frac{1}{X} \\
 & \frac{1}{100}X = \frac{1}{150} \\
 & \frac{1}{100}X = \frac{1}{150} \\
 & \frac{1}{100}X = \frac{1}{150} \\
 & X = \frac{1}{150} \div \frac{1}{100} \\
 & X = \frac{1}{150} \times \frac{100}{1} \\
 & X = \frac{2}{3} = 0.666 = 0.67
 \end{aligned}$$

$$\begin{aligned}
 15) \quad & \frac{2.2}{X} = \frac{8.8}{5} \\
 & \frac{2.2}{X} \times \frac{8.8}{5} \\
 & 8.8X = 11
 \end{aligned}$$

$$\begin{aligned}
 & \frac{8.8X}{8.8} = \frac{11}{8.8} \\
 & X = 1.25
 \end{aligned}$$

$$\begin{aligned}
 16) \quad & \frac{60}{15} = \frac{125}{X} \\
 & \frac{60}{15} \times \frac{125}{X} \\
 & 60X = 1,875 \\
 & \frac{60X}{60} = \frac{1,875}{60} \\
 & X = 31.25
 \end{aligned}$$

17) $\frac{60}{10} = \frac{100}{X}$

$$\frac{60}{10} \times \frac{100}{X} = \frac{100}{X} \times \frac{60}{10}$$

$$60X = 1,000$$

$$\frac{60X}{60} = \frac{1,000}{60}$$

$$X = 16.667$$

$$X = 16.67$$

18) $\frac{80}{X} \times 60 = 20$

$$\frac{80}{X} \times \frac{60}{1} = \frac{20}{1}$$

$$\frac{4,800}{X} = \frac{20}{1}$$

$$\frac{4,800}{X} \times \frac{20}{1} = \frac{20}{1} \times \frac{4,800}{1}$$

$$20X = 4,800$$

$$\frac{20X}{20} = \frac{4,800}{20}$$

$$X = 240$$

19) $\frac{X}{0.5} = \frac{6}{4}$

$$\frac{X}{0.5} \times \frac{6}{4} = \frac{6}{4} \times \frac{X}{0.5}$$

$$4X = 3$$

$$\frac{4X}{4} = \frac{3}{4}$$

$$X = 0.75$$

20) $\frac{5}{2.2} = \frac{X}{1}$

$$\frac{5}{2.2} \times \frac{X}{1} = \frac{X}{1} \times \frac{5}{2.2}$$

$$2.2X = 5$$

$$\frac{2.2X}{2.2} = \frac{5}{2.2}$$

$$X = 2.273$$

$$X = 2.27$$

21) $\frac{1}{15} = \frac{X}{60}$

$$\frac{1}{15} \times \frac{1}{15} = \frac{X}{60}$$

$$\frac{1}{60} = \frac{X}{60}$$

$$\frac{1}{60} \times \frac{X}{60} = \frac{X}{60} \times \frac{1}{60}$$

$$60X = 60$$

$$\frac{60X}{60} = \frac{60}{60}$$

$$X = 1$$

22) $\frac{25\%}{30\%} = \frac{5}{X}$

$$\frac{0.25}{0.3} \times \frac{5}{X} = \frac{5}{X} \times \frac{0.25}{0.3}$$

$$0.25X = 1.5$$

$$\frac{0.25X}{0.25} = \frac{1.5}{0.25}$$

$$X = 6$$

23) $\frac{45}{100} = \frac{X}{240}$

$$100X = 10,800$$

$$\frac{100X}{100} = \frac{10,800}{100}$$

$$X = 108$$

24) $\frac{48 \text{ calories}}{1 \text{ ounce}} = \frac{X \text{ calories}}{1\frac{1}{2} \text{ ounces}}$

$$\frac{48}{1} \times \frac{X}{1\frac{1}{2}} = \frac{X}{1\frac{1}{2}} \times \frac{48}{1}$$

$$X = 48 \times 1\frac{1}{2}$$

$$X = \frac{48}{1} \times \frac{3}{2}$$

$$X = \frac{48}{1} \times \frac{3}{2}$$

$$X = 72 \text{ calories}$$

25) $\frac{450 \text{ milligrams}}{5.5 \text{ hours}} = \frac{X \text{ milligrams}}{1 \text{ hour}}$

$$\frac{450}{5.5} \times \frac{X}{1} = \frac{X}{1} \times \frac{450}{5.5}$$

$$5.5X = 450$$

$$\frac{5.5X}{5.5} = \frac{450}{5.5}$$

$$X = 81.818$$

$$X = 81.82 \text{ milligrams (per hour)}$$

$$\begin{array}{r} 81.818 \\ 5.5 \overline{) 450.000} \\ \underline{440} \\ 100 \\ \underline{55} \\ 450 \\ \underline{440} \\ 100 \\ \underline{55} \\ 450 \\ \underline{440} \\ 10 \end{array}$$