

Giangrasso/Shrimpton, Dosage Calculations: A Dimensional Analysis Approach

Chapter 1

Question 1

Type: MCSA

Reduce the fraction $125/8$ into a mixed number and simplify to the lowest terms.

1. $15 \frac{5}{8}$
2. $15 \frac{3}{16}$
3. $16 \frac{4}{17}$
4. $18 \frac{6}{23}$

Correct Answer: 1

Rationale 1: Divide the numerator by the denominator or $125 \div 8 = 15 \frac{625}{1000}$. The fraction $625/1000$ can be further reduced by dividing both the numerator and denominator by 5 until the fraction of $5/8$ is reached.

Rationale 2: Divide the numerator by the denominator or $125 \div 8 = 15 \frac{625}{1000}$. The fraction $625/1000$ can be further reduced by dividing both the numerator and denominator by 5 until the fraction of $5/8$ is reached.

Rationale 3: Divide the numerator by the denominator or $125 \div 8 = 15 \frac{625}{1000}$. The fraction $625/1000$ can be further reduced by dividing both the numerator and denominator by 5 until the fraction of $5/8$ is reached.

Rationale 4: Divide the numerator by the denominator or $125 \div 8 = 15 \frac{625}{1000}$. The fraction $625/1000$ can be further reduced by dividing both the numerator and denominator by 5 until the fraction of $5/8$ is reached.

Global Rationale: Divide the numerator by the denominator or $125 \div 8 = 15 \frac{625}{1000}$. The fraction $625/1000$ can be further reduced by dividing both the numerator and denominator by 5 until the fraction of $5/8$ is reached.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Reduce and build fractions into equivalent forms.

Question 2

Type: MCSA

Divide $4 \frac{3}{5} \div 2 \frac{5}{8}$ and simplify to the lowest terms.

1. $1 \frac{3}{4}$

2. $1 \frac{5}{8}$
3. $2 \frac{2}{3}$
4. $3 \frac{3}{7}$

Correct Answer: 1

Rationale 1: Write $4 \frac{3}{7}$ as the improper fraction of $\frac{23}{5}$ and $2 \frac{5}{8}$ as the improper fraction $\frac{21}{8}$. Then set up the equation by inverting the second fraction or $\frac{23}{5} \times \frac{8}{21} = \frac{184}{105}$. Now reduce the fraction by dividing 105 into 184 or $1 \frac{75}{100}$. Reduce the fraction of $\frac{75}{100}$ further by 5 until the fraction $\frac{3}{4}$ is reached. The answer is $1 \frac{3}{4}$.

Rationale 2: Write $4 \frac{3}{7}$ as the improper fraction of $\frac{23}{5}$ and $2 \frac{5}{8}$ as the improper fraction $\frac{21}{8}$. Then set up the equation by inverting the second fraction or $\frac{23}{5} \times \frac{8}{21} = \frac{184}{105}$. Now reduce the fraction by dividing 105 into 184 or $1 \frac{75}{100}$. Reduce the fraction of $\frac{75}{100}$ further by 5 until the fraction $\frac{3}{4}$ is reached. The answer is $1 \frac{3}{4}$.

Rationale 3: Write $4 \frac{3}{7}$ as the improper fraction of $\frac{23}{5}$ and $2 \frac{5}{8}$ as the improper fraction $\frac{21}{8}$. Then set up the equation by inverting the second fraction or $\frac{23}{5} \times \frac{8}{21} = \frac{184}{105}$. Now reduce the fraction by dividing 105 into 184 or $1 \frac{75}{100}$. Reduce the fraction of $\frac{75}{100}$ further by 5 until the fraction $\frac{3}{4}$ is reached. The answer is $1 \frac{3}{4}$.

Rationale 4: Write $4 \frac{3}{7}$ as the improper fraction of $\frac{23}{5}$ and $2 \frac{5}{8}$ as the improper fraction $\frac{21}{8}$. Then set up the equation by inverting the second fraction or $\frac{23}{5} \times \frac{8}{21} = \frac{184}{105}$. Now reduce the fraction by dividing 105 into 184 or $1 \frac{75}{100}$. Reduce the fraction of $\frac{75}{100}$ further by 5 until the fraction $\frac{3}{4}$ is reached. The answer is $1 \frac{3}{4}$.

Global Rationale: Write $4 \frac{3}{7}$ as the improper fraction of $\frac{23}{5}$ and $2 \frac{5}{8}$ as the improper fraction $\frac{21}{8}$. Then set up the equation by inverting the second fraction or $\frac{23}{5} \times \frac{8}{21} = \frac{184}{105}$. Now reduce the fraction by dividing 105 into 184 or $1 \frac{75}{100}$. Reduce the fraction of $\frac{75}{100}$ further by 5 until the fraction $\frac{3}{4}$ is reached. The answer is $1 \frac{3}{4}$.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Add, subtract, multiply, and divide fractions.

Question 3

Type: MCSA

Simplify the complex equation $\frac{13}{15} \times \frac{200}{11/17}$ and reduce it to the lowest terms.

1. $267 \frac{22}{25}$
2. $276 \frac{25}{27}$
3. $302 \frac{23}{27}$
4. $347 \frac{19}{24}$

Correct Answer: 1

Rationale 1: First rewrite the equation as $\frac{13}{15} \times \frac{200}{1} \div \frac{11}{17}$. Next, invert the fraction $\frac{11}{17}$ to make the new equation of $\frac{13}{15} \times \frac{200}{1} \times \frac{17}{11}$. Then reduce the denominator 15 and numerator 200 by 5 so that the new equation is $\frac{13}{3} \times \frac{40}{1} \times \frac{17}{11}$. Next multiply the numerators and the denominators to reach the fraction of $\frac{8840}{33}$. Now divide the denominator 33 into 8840 to reach the number of 267 $\frac{88}{100}$. Now reduce the fraction of $\frac{88}{100}$ by 4 to reach the fraction of $\frac{22}{25}$. The final answer is 267 $\frac{22}{25}$.

Rationale 2: First rewrite the equation as $\frac{13}{15} \times \frac{200}{1} \div \frac{11}{17}$. Next, invert the fraction $\frac{11}{17}$ to make the new equation of $\frac{13}{15} \times \frac{200}{1} \times \frac{17}{11}$. Then reduce the denominator 15 and numerator 200 by 5 so that the new equation is $\frac{13}{3} \times \frac{40}{1} \times \frac{17}{11}$. Next multiply the numerators and the denominators to reach the fraction of $\frac{8840}{33}$. Now divide the denominator 33 into 8840 to reach the number of 267 $\frac{88}{100}$. Now reduce the fraction of $\frac{88}{100}$ by 4 to reach the fraction of $\frac{22}{25}$. The final answer is 267 $\frac{22}{25}$.

Rationale 3: First rewrite the equation as $\frac{13}{15} \times \frac{200}{1} \div \frac{11}{17}$. Next, invert the fraction $\frac{11}{17}$ to make the new equation of $\frac{13}{15} \times \frac{200}{1} \times \frac{17}{11}$. Then reduce the denominator 15 and numerator 200 by 5 so that the new equation is $\frac{13}{3} \times \frac{40}{1} \times \frac{17}{11}$. Next multiply the numerators and the denominators to reach the fraction of $\frac{8840}{33}$. Now divide the denominator 33 into 8840 to reach the number of 267 $\frac{88}{100}$. Now reduce the fraction of $\frac{88}{100}$ by 4 to reach the fraction of $\frac{22}{25}$. The final answer is 267 $\frac{22}{25}$.

Rationale 4: First rewrite the equation as $\frac{13}{15} \times \frac{200}{1} \div \frac{11}{17}$. Next, invert the fraction $\frac{11}{17}$ to make the new equation of $\frac{13}{15} \times \frac{200}{1} \times \frac{17}{11}$. Then reduce the denominator 15 and numerator 200 by 5 so that the new equation is $\frac{13}{3} \times \frac{40}{1} \times \frac{17}{11}$. Next multiply the numerators and the denominators to reach the fraction of $\frac{8840}{33}$. Now divide the denominator 33 into 8840 to reach the number of 267 $\frac{88}{100}$. Now reduce the fraction of $\frac{88}{100}$ by 4 to reach the fraction of $\frac{22}{25}$. The final answer is 267 $\frac{22}{25}$.

Global Rationale: First rewrite the equation as $\frac{13}{15} \times \frac{200}{1} \div \frac{11}{17}$. Next, invert the fraction $\frac{11}{17}$ to make the new equation of $\frac{13}{15} \times \frac{200}{1} \times \frac{17}{11}$. Then reduce the denominator 15 and numerator 200 by 5 so that the new equation is $\frac{13}{3} \times \frac{40}{1} \times \frac{17}{11}$. Next multiply the numerators and the denominators to reach the fraction of $\frac{8840}{33}$. Now divide the denominator 33 into 8840 to reach the number of 267 $\frac{88}{100}$. Now reduce the fraction of $\frac{88}{100}$ by 4 to reach the fraction of $\frac{22}{25}$. The final answer is 267 $\frac{22}{25}$.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Simplify complex fractions.

Question 4

Type: MCSA

Convert 0.85 to a fraction and reduce it to the smallest terms.

1. $\frac{1}{4}$
2. $\frac{11}{19}$
3. $\frac{17}{20}$
4. $\frac{45}{50}$

Correct Answer: 3

Rationale 1: The number of spaces after the decimal point is 2; therefore the denominator for the conversion of 0.85 to a fraction is 100. The fraction would be $\frac{85}{100}$. When reducing to the smallest terms, divide both the numerator and denominator by 5 to determine the fraction $\frac{17}{20}$.

Rationale 2: The number of spaces after the decimal point is 2; therefore the denominator for the conversion of 0.85 to a fraction is 100. The fraction would be $\frac{85}{100}$. When reducing to the smallest terms, divide both the numerator and denominator by 5 to determine the fraction $\frac{17}{20}$.

Rationale 3: The number of spaces after the decimal point is 2; therefore the denominator for the conversion of 0.85 to a fraction is 100. The fraction would be $\frac{85}{100}$. When reducing to the smallest terms, divide both the numerator and denominator by 5 to determine the fraction $\frac{17}{20}$.

Rationale 4: The number of spaces after the decimal point is 2; therefore the denominator for the conversion of 0.85 to a fraction is 100. The fraction would be $\frac{85}{100}$. When reducing to the smallest terms, divide both the numerator and denominator by 5 to determine the fraction $\frac{17}{20}$.

Global Rationale: The number of spaces after the decimal point is 2; therefore the denominator for the conversion of 0.85 to a fraction is 100. The fraction would be $\frac{85}{100}$. When reducing to the smallest terms, divide both the numerator and denominator by 5 to determine the fraction $\frac{17}{20}$.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Convert between decimal numbers and fractions.

Question 5

Type: MCSA

Complete the following equation: $0.35 \div 0.20$.

1. 0.75
2. 1.25
3. 1.50
4. 1.75

Correct Answer: 4

Rationale 1: Set up the equation so that 0.20 is being divided into 0.35. Move the decimal point 2 spaces to the right. Divide 20 into 35. Place the number 1 above the number 5. The remaining value to divide by 20 is now 15. Add a 0 to 15 and divide 20 into 150. Place the number 7 in the first place after the decimal point. The remaining value to divide by 20 is now 10. Add a 0 to the 10 and divide 20 into 100. Place the number 5 in the second space after the decimal point.

Rationale 2: Set up the equation so that 0.20 is being divided into 0.35. Move the decimal point 2 spaces to the right. Divide 20 into 35. Place the number 1 above the number 5. The remaining value to divide by 20 is now 15. Add a 0 to 15 and divide 20 into 150. Place the number 7 in the first place after the decimal point. The remaining value to divide by 20 is now 10. Add a 0 to the 10 and divide 20 into 100. Place the number 5 in the second space after the decimal point.

Rationale 3: Set up the equation so that 0.20 is being divided into 0.35. Move the decimal point 2 spaces to the right. Divide 20 into 35. Place the number 1 above the number 5. The remaining value to divide by 20 is now 15. Add a 0 to 15 and divide 20 into 150. Place the number 7 in the first place after the decimal point. The remaining value to divide by 20 is now 10. Add a 0 to the 10 and divide 20 into 100. Place the number 5 in the second space after the decimal point.

Rationale 4: Set up the equation so that 0.20 is being divided into 0.35. Move the decimal point 2 spaces to the right. Divide 20 into 35. Place the number 1 above the number 5. The remaining value to divide by 20 is now 15. Add a 0 to 15 and divide 20 into 150. Place the number 7 in the first place after the decimal point. The remaining value to divide by 20 is now 10. Add a 0 to the 10 and divide 20 into 100. Place the number 5 in the second space after the decimal point.

Global Rationale: Set up the equation so that 0.20 is being divided into 0.35. Move the decimal point 2 spaces to the right. Divide 20 into 35. Place the number 1 above the number 5. The remaining value to divide by 20 is now 15. Add a 0 to 15 and divide 20 into 150. Place the number 7 in the first place after the decimal point. The remaining value to divide by 20 is now 10. Add a 0 to the 10 and divide 20 into 100. Place the number 5 in the second space after the decimal point.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Add, subtract, multiply, and divide decimal numbers.

Question 6

Type: MCSA

Calculate 0.25×1.47 and round to the nearest tenth decimal place.

1. 0.4
2. 0.37
3. 0.365
4. 0.375

Correct Answer: 1

Rationale 1: When multiplying 0.25 by 1.47 begin by first calculating $25 \times 147 = 3675$. Then count the total number of decimal places which is 4. From the number 5, count back four spaces or 0.3675. Next, look at the number and determine the tenth decimal place. This is the number 3. The next number to 3 is 6 which is greater than 5. This means that the number can be rounded up to 4. The correct answer is 0.4.

Rationale 2: When multiplying 0.25 by 1.47 begin by first calculating $25 \times 147 = 3675$. Then count the total number of decimal places which is 4. From the number 5, count back four spaces or 0.3675. Next, look at the number and determine the tenth decimal place. This is the number 3. The next number to 3 is 6 which is greater than 5. This means that the number can be rounded up to 4. The correct answer is 0.4.

Rationale 3: When multiplying 0.25 by 1.47 begin by first calculating $25 \times 147 = 3675$. Then count the total number of decimal places which is 4. From the number 5, count back four spaces or 0.3675. Next, look at the number and determine the tenth decimal place. This is the number 3. The next number to 3 is 6 which is greater than 5. This means that the number can be rounded up to 4. The correct answer is 0.4.

Rationale 4: When multiplying 0.25 by 1.47 begin by first calculating $25 \times 147 = 3675$. Then count the total number of decimal places which is 4. From the number 5, count back four spaces or 0.3675. Next, look at the number and determine the tenth decimal place. This is the number 3. The next number to 3 is 6 which is greater than 5. This means that the number can be rounded up to 4. The correct answer is 0.4.

Global Rationale: When multiplying 0.25 by 1.47 begin by first calculating $25 \times 147 = 3675$. Then count the total number of decimal places which is 4. From the number 5, count back four spaces or 0.3675. Next, look at the number and determine the tenth decimal place. This is the number 3. The next number to 3 is 6 which is greater than 5. This means that the number can be rounded up to 4. The correct answer is 0.4.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Round decimal numbers to a desired number of decimal places.

Question 7

Type: MCSA

Calculate the decimal number and smallest reduced fraction for 65%.

1. 0.35; 7/20
2. 0.45; 9/20
3. 0.55; 11/20
4. 0.65; 13/20

Correct Answer: 4

Rationale 1: To convert percentages to a fraction place the value of the percent in the numerator and the 100 as the denominator. For 65% this would be $65/100$. Reduce this number further by dividing by 5 to determine the smallest fraction as being $13/20$. To determine the decimal number begin again by placing 65 as the numerator and 100 as the denominator or $65/100$. Since the denominator is 100, the number has 2 decimal points or 0.65.

Rationale 2: To convert percentages to a fraction place the value of the percent in the numerator and the 100 as the denominator. For 65% this would be $65/100$. Reduce this number further by dividing by 5 to determine the smallest fraction as being $13/20$. To determine the decimal number begin again by placing 65 as the numerator and 100 as the denominator or $65/100$. Since the denominator is 100, the number has 2 decimal points or 0.65.

Rationale 3: To convert percentages to a fraction place the value of the percent in the numerator and the 100 as the denominator. For 65% this would be $65/100$. Reduce this number further by dividing by 5 to determine the smallest fraction as being $13/20$. To determine the decimal number begin again by placing 65 as the numerator and 100 as the denominator or $65/100$. Since the denominator is 100, the number has 2 decimal points or 0.65.

Rationale 4: To convert percentages to a fraction place the value of the percent in the numerator and the 100 as the denominator. For 65% this would be $65/100$. Reduce this number further by dividing by 5 to determine the smallest fraction as being $13/20$. To determine the decimal number begin again by placing 65 as the numerator and 100 as the denominator or $65/100$. Since the denominator is 100, the number has 2 decimal points or 0.65.

Global Rationale: To convert percentages to a fraction place the value of the percent in the numerator and the 100 as the denominator. For 65% this would be $65/100$. Reduce this number further by dividing by 5 to determine the smallest fraction as being $13/20$. To determine the decimal number begin again by placing 65 as the numerator and 100 as the denominator or $65/100$. Since the denominator is 100, the number has 2 decimal points or 0.65.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Write percentages as decimal numbers and fractions.

Question 8

Type: MCSA

The healthcare provider suggests that a client weighing 250 lbs. needs to lose 20% of the current body weight. How many pounds is this client expected to lose?

1. 15

2. 25

- 3. 50
- 4. 65

Correct Answer: 3

Rationale 1: The client currently weight 250 lbs. Convert 20% to the decimal equivalent of 20/100 or 0.20. Then, multiply $250 \times 0.20 = 50$. The healthcare provider wants the client to lose 50 lbs.

Rationale 2: The client currently weight 250 lbs. Convert 20% to the decimal equivalent of 20/100 or 0.20. Then, multiply $250 \times 0.20 = 50$. The healthcare provider wants the client to lose 50 lbs.

Rationale 3: The client currently weight 250 lbs. Convert 20% to the decimal equivalent of 20/100 or 0.20. Then, multiply $250 \times 0.20 = 50$. The healthcare provider wants the client to lose 50 lbs.

Rationale 4: The client currently weight 250 lbs. Convert 20% to the decimal equivalent of 20/100 or 0.20. Then, multiply $250 \times 0.20 = 50$. The healthcare provider wants the client to lose 50 lbs.

Global Rationale: The client currently weight 250 lbs. Convert 20% to the decimal equivalent of 20/100 or 0.20. Then, multiply $250 \times 0.20 = 50$. The healthcare provider wants the client to lose 50 lbs.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Find a percent of a number and the percent of change.

Question 9

Type: MCSA

A client was receiving intravenous fluids of 100 ounces per day. The healthcare provider writes an order to reduce the fluid to 85 ounces per day. What percent has the fluid changed?

- 1. 65%
- 2. 85%
- 3. 90%
- 4. 95%

Correct Answer: 2

Rationale 1: To determine the percent of change, use the equation fraction of change is equal to the change divided by the original number. For this situation the equation would be the fraction of change = $85/100$ or 85%.

Rationale 2: To determine the percent of change, use the equation fraction of change is equal to the change divided by the original number. For this situation the equation would be the fraction of change = $85/100$ or 85%.

Rationale 3: To determine the percent of change, use the equation fraction of change is equal to the change divided by the original number. For this situation the equation would be the fraction of change = $85/100$ or 85%.

Rationale 4: To determine the percent of change, use the equation fraction of change is equal to the change divided by the original number. For this situation the equation would be the fraction of change = $85/100$ or 85%.

Global Rationale: To determine the percent of change, use the equation fraction of change is equal to the change divided by the original number. For this situation the equation would be the fraction of change = $85/100$ or 85%.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Find a percent of a number and the percent of change.

Question 10

Type: MCSA

A client ingested $\frac{1}{2}$ of 4 ounces of juice; $\frac{3}{4}$ of 6 ounces of coffee; $\frac{1}{2}$ of 8 ounces of broth; and $\frac{3}{4}$ of 12 ounces of water. Which fluid did the patient consume the most?

1. Juice
2. Coffee
3. Broth
4. Water

Correct Answer: 4

Rationale 1: One half of 4 ounces of juice is 2 ounces. Calculate $\frac{3}{4}$ of 6 ounces of coffee by multiplying $\frac{3}{4} \times 6/1 = 18/4 = 4.5$ ounces. One half of 8 ounces of broth is 4 ounces. Calculate $\frac{3}{4}$ of 12 ounces of water by multiplying $\frac{3}{4} \times 12/1 = 36/4 = 9$ ounces. The patient consumed the most of water.

Rationale 2: One half of 4 ounces of juice is 2 ounces. Calculate $\frac{3}{4}$ of 6 ounces of coffee by multiplying $\frac{3}{4} \times 6/1 = 18/4 = 4.5$ ounces. One half of 8 ounces of broth is 4 ounces. Calculate $\frac{3}{4}$ of 12 ounces of water by multiplying $\frac{3}{4} \times 12/1 = 36/4 = 9$ ounces. The patient consumed the most of water.

Rationale 3: One half of 4 ounces of juice is 2 ounces. Calculate $\frac{3}{4}$ of 6 ounces of coffee by multiplying $\frac{3}{4} \times 6/1 = 18/4 = 4.5$ ounces. One half of 8 ounces of broth is 4 ounces. Calculate $\frac{3}{4}$

of 12 ounces of water by multiplying $\frac{3}{4} \times 12/1 = 36/4 = 9$ ounces. The patient consumed the most of water.

Rationale 4: One half of 4 ounces of juice is 2 ounces. Calculate $\frac{3}{4}$ of 6 ounces of coffee by multiplying $\frac{3}{4} \times 6/1 = 18/4 = 4.5$ ounces. One half of 8 ounces of broth is 4 ounces. Calculate $\frac{3}{4}$ of 12 ounces of water by multiplying $\frac{3}{4} \times 12/1 = 36/4 = 9$ ounces. The patient consumed the most of water.

Global Rationale: One half of 4 ounces of juice is 2 ounces. Calculate $\frac{3}{4}$ of 6 ounces of coffee by multiplying $\frac{3}{4} \times 6/1 = 18/4 = 4.5$ ounces. One half of 8 ounces of broth is 4 ounces. Calculate $\frac{3}{4}$ of 12 ounces of water by multiplying $\frac{3}{4} \times 12/1 = 36/4 = 9$ ounces. The patient consumed the most of water.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Estimate answers.

Revised Questions

Question 11

Type: FIB

A client is prescribed 400 mg of vancomycin every eight hours. The healthcare provider increased the dosage to 600 mg every six hours. What percentage of change was made in the dosage?

Standard Text: Record the answer rounding to the nearest whole number.

Correct Answer: 200 %

Global Rationale: Because the frequency of the medication has changed, begin by determining the original total daily dose by multiplying $400 \text{ mg} \times 3 = 1200 \text{ mg}$. Then determine the changed dose by multiplying $600 \text{ mg} \times 4 = 2400 \text{ mg}$. Then use the equation Fraction of Change = Change/Original, or Fraction of Change = $2400/1200 = 2.00$ or 200%. The client's dose was changed by 200%.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Find a percent of a number and the percent of change.

Question 12

Type: MCSA

A client is prescribed digoxin (Lanoxin). The healthcare provider increased the client's dose from 0.25 mg to 0.375 mg. What percentage was the dosage increased?

1. 5 %
2. 50%
3. 150%
4. 300%

Correct Answer: 3

Rationale 1: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$ the equation will be $\text{Fraction of Change} = 0.375/0.25 = 1.5$ or 150% increase in dosage.

Rationale 2: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$ the equation will be $\text{Fraction of Change} = 0.375/0.25 = 1.5$ or 150% increase in dosage.

Rationale 3: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$ the equation will be $\text{Fraction of Change} = 0.375/0.25 = 1.5$ or 150% increase in dosage.

Rationale 4: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$ the equation will be $\text{Fraction of Change} = 0.375/0.25 = 1.5$ or 150% increase in dosage.

Global Rationale: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$ the equation will be $\text{Fraction of Change} = 0.375/0.25 = 1.5$ or 150% increase in dosage.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Find a percent of a number and the percent of change.

Question 13

Type: MCSA

A client is prescribed 10 mg of a medication, 3 times a day. The dosage is changed to 15 mg 3 times a day. What percentage has this medication been increased?

1. 16%
2. 66%
3. 75%
4. 90%

Correct Answer: 2

Rationale 1: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, calculate the Fraction of Change as being $10/15$ or $2/3$. Convert this fraction into percent by dividing 2 by 3 or 0.66, place 66/100; or 66%. This medication was increased by 66%.

Rationale 2: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, calculate the Fraction of Change as being $10/15$ or $2/3$. Convert this fraction into percent by dividing 2 by 3 or 0.66, place $66/100$; or 66%. This medication was increased by 66%.

Rationale 3: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, calculate the Fraction of Change as being $10/15$ or $2/3$. Convert this fraction into percent by dividing 2 by 3 or 0.66, place $66/100$; or 66%. This medication was increased by 66%.

Rationale 4: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, calculate the Fraction of Change as being $10/15$ or $2/3$. Convert this fraction into percent by dividing 2 by 3 or 0.66, place $66/100$; or 66%. This medication was increased by 66%.

Global Rationale: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, calculate the Fraction of Change as being $10/15$ or $2/3$. Convert this fraction into percent by dividing 2 by 3 or 0.66, place $66/100$; or 66%. This medication was increased by 66%.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Find a percent of a number and the percent of change.

Question 14

Type: MCSA

A client is prescribed 125 mg of a medication every 4 hours. The dosage is decreased to 75 mg every 4 hours. What percent was the medication decreased?

1. 15%
2. 20%
3. 60%
4. 75%

Correct Answer: 3

Rationale 1: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, calculate the equation $\text{Fraction of Change} = 75/125$ or $3/5$. Change the fraction to a decimal by dividing 3 by 5 or 0.6 or 60%. The dosage was changed by 60%.

Rationale 2: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, calculate the equation $\text{Fraction of Change} = 75/125$ or $3/5$. Change the fraction to a decimal by dividing 3 by 5 or 0.6 or 60%. The dosage was changed by 60%.

Rationale 3: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, calculate the equation $\text{Fraction of Change} = 75/125$ or $3/5$. Change the fraction to a decimal by dividing 3 by 5 or 0.6 or 60%. The dosage was changed by 60%.

Rationale 4: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, calculate the equation $\text{Fraction of Change} = 75/125$ or $3/5$. Change the fraction to a decimal by dividing 3 by 5 or 0.6 or 60%. The dosage was changed by 60%.

Global Rationale: Using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, calculate the equation $\text{Fraction of Change} = 75/125$ or $3/5$. Change the fraction to a decimal by dividing 3 by 5 or 0.6 or 60%. The dosage was changed by 60%.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Find a percent of a number and the percent of change.

Question 15

Type: MCSA

The healthcare provider prescribes 25 mg of a medication every 8 hours for the client. The next day the dose of medication is changed to 15 mg twice a day. How much has this medication been decreased?

1. 25%
2. 40%
3. 55%
4. 73%

Correct Answer: 2

Rationale 1: Because the frequency of the medication has changed begin by determined the total daily dosage of the medication. When the client was receiving 75 mg of the medication every 8 hours the client received 25×3 or 75 mg of the medication. When the order changed, the client is receiving $15 \text{ mg} \times 2$ or 30 mg of the medication. Now using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, the equation will be $\text{Fraction of Change} = 30/75$ or $6/15$. Convert this fraction into a decimal number by dividing 6 by 15 or 0.4 which is 40%. The medication dosage was decreased by 40%.

Rationale 2: Because the frequency of the medication has changed begin by determined the total daily dosage of the medication. When the client was receiving 75 mg of the medication every 8 hours the client received 25×3 or 75 mg of the medication. When the order changed, the client is receiving $15 \text{ mg} \times 2$ or 30 mg of the medication. Now using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, the equation will be $\text{Fraction of Change} = 30/75$ or $6/15$. Convert this fraction into a decimal number by dividing 6 by 15 or 0.4 which is 40%. The medication dosage was decreased by 40%.

Rationale 3: Because the frequency of the medication has changed begin by determined the total daily dosage of the medication. When the client was receiving 75 mg of the medication every 8 hours the client received 25×3 or 75 mg of the medication. When the order changed, the client

is receiving 15 mg x 2 or 30 mg of the medication. Now using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, the equation will be $\text{Fraction of Change} = 30/75$ or $6/15$. Convert this fraction into a decimal number by dividing 6 by 15 or 0.4 which is 40%. The medication dosage was decreased by 40%.

Rationale 4: Because the frequency of the medication has changed begin by determined the total daily dosage of the medication. When the client was receiving 75 mg of the medication every 8 hours the client received 25×3 or 75 mg of the medication. When the order changed, the client is receiving 15 mg x 2 or 30 mg of the medication. Now using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, the equation will be $\text{Fraction of Change} = 30/75$ or $6/15$. Convert this fraction into a decimal number by dividing 6 by 15 or 0.4 which is 40%. The medication dosage was decreased by 40%.

Global Rationale: Because the frequency of the medication has changed begin by determining the total daily dosage of the medication. When the client was receiving 75 mg of the medication every 8 hours the client received 25×3 or 75 mg of the medication. When the order changed, the client is receiving 15 mg x 2 or 30 mg of the medication. Now using the equation $\text{Fraction of Change} = \text{Change}/\text{Original}$, the equation will be $\text{Fraction of Change} = 30/75$ or $6/15$. Convert this fraction into a decimal number by dividing 6 by 15 or 0.4 which is 40%. The medication dosage was decreased by 40%.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Find a percent of a number and the percent of change.

Question 16

Type: MCMA

The medication nurse wants to verify calculations prior to administering medications through the use of a calculator. Which functions should the calculator have in order to be useful to the nurse?

Standard Text: Select all that apply.

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Percentage

Correct Answer: 1,2,3,4

Rationale 1: A basic four-function (addition, subtraction, multiplication, and division), handheld calculator with a square-root key is sufficient to perform most medical dosage calculations. While having a percentage function may be useful, this is not required when calculating drug dosages.

Rationale 2: A basic four-function (addition, subtraction, multiplication, and division), handheld calculator with a square-root key is sufficient to perform most medical dosage calculations. While having a percentage function may be useful, this is not required when calculating drug dosages.

Rationale 3: A basic four-function (addition, subtraction, multiplication, and division), handheld calculator with a square-root key is sufficient to perform most medical dosage calculations. While having a percentage function may be useful, this is not required when calculating drug dosages.

Rationale 4: A basic four-function (addition, subtraction, multiplication, and division), handheld calculator with a square-root key is sufficient to perform most medical dosage calculations. While having a percentage function may be useful, this is not required when calculating drug dosages.

Rationale 5: A basic four-function (addition, subtraction, multiplication, and division), handheld calculator with a square-root key is sufficient to perform most medical dosage calculations. While having a percentage function may be useful, this is not required when calculating drug dosages.

Global Rationale: A basic four-function (addition, subtraction, multiplication, and division), handheld calculator with a square-root key is sufficient to perform most medical dosage calculations. While having a percentage function may be useful, this is not required when calculating drug dosages.

Cognitive Level: Remembering

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Use a calculator to verify answers.

Question 17

Type: FIB

Calculate the decimal number and smallest reduced fraction for 85%.

Standard Text: Record the decimal number rounding to the nearest hundredth.

Correct Answers: 0.85 and 17/20

Global Rationale: To convert percentages to a fraction place the value of the percent in the numerator and the 100 as the denominator. For 85% this would be 85/100. Reduce this number further by dividing by 5 to determine the smallest fraction as being 17/20. To determine the decimal number begin again by placing 85 as the numerator and 100 as the denominator or 85/100. Since the denominator is 100, the number has 2 decimal points or 0.85.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Write percentages as decimal numbers and fractions.

Question 18

Type: FIB

Calculate 0.35×1.45

Standard Text: Record the answer rounding to the nearest hundredth decimal place.

Correct Answer: 0.51

Global Rationale: When multiplying 0.35 by 1.45 begin by first calculating $35 \times 145 = 5,075$. Then count the total number of decimal places which is 4. From the number 5, count back four spaces or 0.5075. Next, look at the number and determine the hundredth decimal place. This is the number 7. The next number to 0 is 7 which is greater than 5. This means that the number can be rounded up to 1. The correct answer is 0.51.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Round decimal numbers to a desired number of decimal places.

Question 19

Type: FIB

The dietician suggests that a client weighing 220 lbs. should lose 15% of the current body to meet the first weight loss goal. How many pounds does this client have to lose to meet the first weight loss goal?

Standard Text: Record the answer rounding to the nearest whole number.

Correct Answer: 33 lbs

Global Rationale: The client currently weight 220 lbs. Convert 15% to the decimal equivalent of $15/100$ or 0.15. Then, multiply $220 \times 0.15 = 50$. The healthcare provider wants the client to lose 33 lbs.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process:

Learning Outcome: Find a percent of a number and the percent of change.

Question 20

Type: FIB

A adult client is receiving 2000 mL of intravenous fluids per day. The healthcare provider writes an order to reduce the fluid to 1500 mL per day. What percent has the fluid changed?

Standard Text: Record the answer rounding to the nearest whole number.

Correct Answer: 75%

Global Rationale: To determine the percent of change, use the equation fraction of change is equal to the change divided by the original number. For this situation the equation would be the fraction of change = $1500/2000$ or 75%.

Cognitive Level: Applying

Client Need: Safe and Effective Care Environment

Client Need Sub: Management of Care

Nursing/Integrated Concepts: Nursing Process: Implementation

Learning Outcome: Estimate answers.