

Section 1 Whole Numbers

MULTIPLE CHOICE

1. The key used on a calculator to represent addition is:
- | | |
|------|--------------|
| a. - | c. x |
| b. + | d. $\square$ |

ANS: D PTS: 1

2. The key on the calculator used to change the sign of a number is called:
- | | |
|------------------------|-----------------|
| a. Plus/minus key | c. Reverse key |
| b. Negative number key | d. Subtract key |

ANS: A PTS: 1

3. The key used on a calculator to represent division is:
- | | |
|--------------|------|
| a. $\square$ | c. * |
| b. + | d. # |

ANS: A PTS: 1

4. If the number -5 is entered in a calculator followed by the (+/-) key what will be displayed on the calculator?
- | | |
|------------------|--------|
| a. $\frac{1}{5}$ | c. 5.5 |
| b. 5 | d. -5 |

ANS: B PTS: 1

MULTIPLE RESPONSE

1. An electrical contractor purchases 15 fittings of one type for \$45 and of another type for \$36.
- A. Find the cost per fitting for those costing \$45.
B. Find the cost per fitting for those costing \$36.

(CHOOSE TWO ANSWERS)

- | | |
|-------|-------|
| a. 1 | e. 7 |
| b. 3 | f. 6 |
| c. 11 | g. 12 |
| d. 4 | h. 5 |

ANS: B, F PTS: 3

NUMERIC RESPONSE

1. Eight different boxes contain a number of $\frac{3}{4}$ inch, # 8 flat-head, bright wood screws. The numbers of screws are 124, 72, 36, 92, 38, 64, 74, and 67. What is the total number of screws?

ANS: 567

PTS: 3

2. An electrician uses switch outlet boxes on eight different jobs. The number of boxes used on each job is 56, 9, 86, 36, 93, 105, 42, and 56. Find the total number of outlet boxes used.

ANS: 483

PTS: 3

3. At different times during the week, an electrician takes the following amounts of metallic cable from stock: 500 feet, 1,200 feet, 250 feet, 90 feet, 38 feet, 65 feet, 84 feet, 225 feet, and 125 feet. What is the total number of feet of metallic cable taken from stock?

ANS: 2577

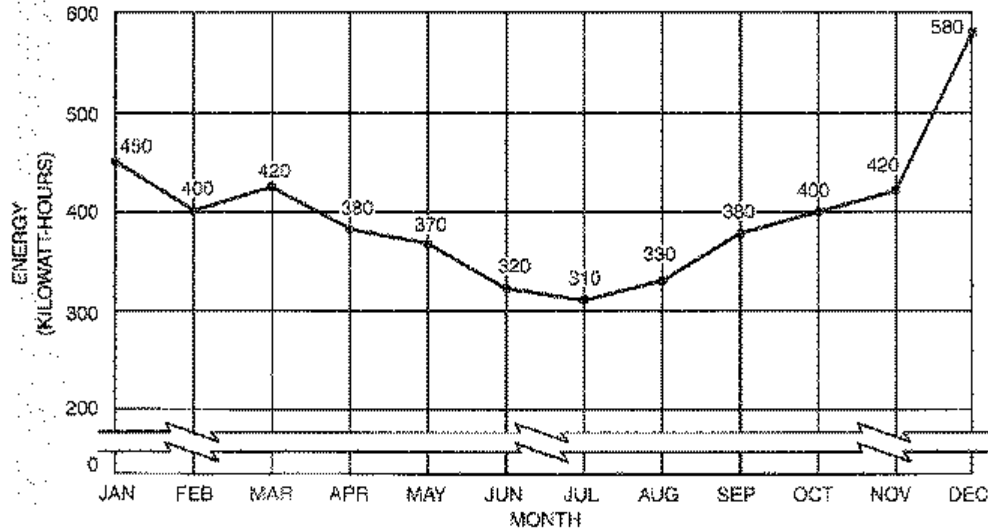
PTS: 3

4. A factory department has motors of 75 horsepower, 30 horsepower, 200 horsepower, 40 horsepower, 25 horsepower, 15 horsepower, 5 horsepower, 125 horsepower, 150 horsepower, and 175 horsepower. What is the combined horsepower of the 10 motors?

ANS: 840

PTS: 3

5. The line graph shows the monthly consumption of energy in kilowatt-hours for a house during a one-year period. Find the total amount of energy consumed during the year.



ANS: 4,760

PTS: 3

6. The cost of magnet wire for a motor repair shop during a one-week period is as follows: 14 pounds of number 17, \$58; 12 pounds of number 16, \$55; 10 pounds of number 24, \$51; 6 pounds of number 21, \$19; and 5 pounds of number 25, \$24. Find the total cost of magnet wire during this period.

ANS: 207

PTS: 3

7. Three rooms of a house contain lamps that have the following wattage: living room, 150 watts; dining room, 125 watts; bathroom, 75 watts. What is the total load when all lamps are operating?

ANS: 350

PTS: 3

8. An electrical contractor receives the following quantities of Braidx cable during the first quarter of the year: January, 7,500 feet; February, 10,750 feet; March, 4,500 feet. Find the total number of feet of Braidx cable received.

ANS: 22,750

PTS: 3

9. An electrical contractor charges \$598 for a job. The materials cost \$263. The cost of labor is \$173, and the cost of transportation is \$10. Find the profit.

ANS: 152

PTS: 3

10. For a residential job, a reel containing 1,050 feet of cable is delivered. Three 45-foot lengths and three 65-foot lengths are used. How many feet are left?

ANS: 720

PTS: 3

11. 1,000-foot reel of large stranded cable weighs 1,106 pounds. Of this, 365 pounds are used on a certain job from the switch to the first pull box, and 422 pounds are used from the first box to the last box. How many pounds of wire are left on the reel?

ANS: 319

PTS: 3

12. On a certain job, a sum of \$438 is spent for materials. Of this amount, \$76 is spent for 1-inch conduit, and \$105 is spent for cable. How much money is spent for other materials?

ANS: 257

PTS: 3

13. At inventory time, 435 pounds of magnet wire for winding motors is available. In ten successive days, 15 pounds, 6 pounds, 24 pounds, 12 pounds, 3 pounds, 8 pounds, 17 pounds, 32 pounds, 16 pounds, and 13 pounds of wire are taken out of stock. How many pounds are left?

ANS: 289

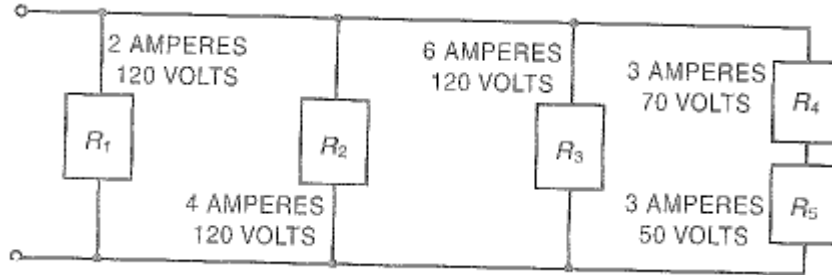
PTS: 3

14. A supply house has 804 solenoids for 5-horsepower motor controls. The clerk must reorder this item when the supply reaches 60. Fourteen are sold on January 1, and 75 are sold on January 16. How many more can be sold before reordering?
- ANS: 655
- PTS: 3
15. A buyer can purchase 70 screwdrivers. Ten 4-inch lengths, twelve 6-inch lengths, twenty 8-inch lengths are needed. How many heavy 24-inch screwdrivers can be bought to obtain the total of 70 screwdrivers?
- ANS: 8
- PTS: 3
16. A two-wire transmission line requires 134 miles of conductor for each wire. By straightening the proposed right-of-way, the distance is reduced by 7 miles. What will be the length of each new wire?
- ANS: 127
- PTS: 3
17. A tapered pin has a small-end diameter of 101 centimeters and a large-end diameter of 189 centimeters. What is the difference between the two diameters?
- ANS: 88
- PTS: 3
18. A bearing on a large machine is tested over a period of 8 hours at a speed of 40,500 revolutions per hour. How many revolutions does the shaft turn in the bearing during the test period?
- ANS: 324,000
- PTS: 3
19. A very small magnet is wound with 97 layers with 215 turns per layer. How many turns of wire are on the coil?
- ANS: 20,855
- PTS: 3
20. A building uses the following size lamps: sixteen 50-watt, nine 15-watt, twelve 25-watt, six 75-watt, and four 100-watt. How many watts are consumed when all the lights in the building are burning?
- ANS: 2,085
- PTS: 3
21. Thirty-four steel boxes are used for a certain wiring job. In each box, five 1-inch holes are drilled. In twenty-three of the boxes, two $1\frac{3}{4}$ -inch holes are drilled, and the remaining boxes have three $1\frac{1}{2}$ -inch holes drilled in them. How many holes are drilled in all the boxes?

ANS: 249

PTS: 3

22. The product of current (amperes) and voltage (volts) equals power (watts). The total power of an electrical circuit is equal to the sum of the individual powers. Find the total power for the circuit shown.



ANS: 1,800

PTS: 3

23. A certain lighting job requires four incandescent fixtures, twelve direct fluorescent luminaires, and nine semidirect fluorescent luminaires. The incandescent fixtures cost \$19 each; the direct luminaires cost \$26 each; and the semidirect luminaires cost \$31 each. Find the total cost of all the fixtures and luminaires.

ANS: 667

PTS: 3

24. An electrician uses 763 feet of conduit on each floor of a five-story building. What is the total length of conduit used?

ANS: 3,815

PTS: 3

25. How many 250-foot rolls of BX cable are needed if a job requires a total of 5,250 feet?

ANS: 21

PTS: 3

26. A certain wiring job has 28 outlets equally spaced over 351 feet. If one outlet is placed at the beginning and one at the end, what is the center-to-center distance between outlets?

ANS: 13

PTS: 3

27. Twelve standard packages of conduit fittings are purchased. Their combined weight is 780 pounds. What is the weight per package?

ANS: 65

PTS: 3

28. Two thousand, five hundred feet of BX cable are ordered. The cable is shipped in 250-foot coils. How many coils are shipped?

ANS: 10

PTS: 3

29. A wiring job uses 1,232 feet of cable for 56 outlets. What is the average number of feet per outlet?

ANS: 22

PTS: 3

30. On a 124-foot length of Romex cable, 32 staples are used. The staples are equally spaced. If one staple is placed at the beginning and one at the end of the cable, how far apart are the staples placed?

ANS: 4

PTS: 3

31. Box A and box B each contain type C connectors. Box A contains 200 connectors and costs \$30. Find the cost of box B, which contains 260 connectors. The unit price is the same for both boxes.

ANS: 39

PTS: 3

32. An electrician removes from stock, at different times, the following amounts of BX cable: 120 feet, 327 feet, 637 feet, 302 feet, 500 feet, 250 feet, 140 feet, 75 feet, and 789 feet. Find the total number of feet of BX cable taken from stock.

ANS: 3,140

PTS: 3

33. A school has 12 electrical circuits that carry 2,569 watts, 1,260 watts, 1,639 watts, 563 watts, 790 watts, 800 watts, 1,137 watts, 250 watts, 500 watts, 750 watts, 1,830 watts, and 2,462 watts. What is the total number of watts consumed when all these circuits are being used under their total loads?

ANS: 14,550

PTS: 3

34. The following number of BX staples are used during a given period: 28, 250, 38, 108, 92, 130, 25, 36, 97, 91, 65, and 40. Find the total number of BX staples used.

ANS: 1,000

PTS: 3

35. An inventory sheet shows a balance of 500 outlet boxes on January 1. On January 10, 127 outlet boxes are taken out of stock. On January 14, 61 outlet boxes are returned to stock. How many outlet boxes are left in stock after January 14?
- ANS: 434
- PTS: 3
36. A purchase of 2,500 feet of number 14 double-braided, rubber-covered wire is made for a job. On November 1, 978 feet of this wire are used, and on November 3, 1,023 feet are used. How many feet of wire are left?
- ANS: 499
- PTS: 3
37. An electrical contractor employs 16 people. Five people earn \$15 per hour, four people earn \$17 per hour, and the remaining people earn \$16 per hour. What is the total hourly wage earned by all 16 people?
- ANS: 255
- PTS: 3
38. A wiring job requires 29 outlets to be spaced equally over 336 feet. One outlet is placed at the beginning of the 336 feet and one at the end. Find the center-to-center distance between the outlets.
- ANS: 12
- PTS: 3
39. Twenty standard cartons of octal boxes weigh a total of 1,100 pounds. Find the weight per carton.
- ANS: 55
- PTS: 3
40. Receptacle boxes are placed 12 feet apart. Holes are drilled in the wall studs 1 foot above the boxes to permit Romex wire to be run between them. Each receptacle box is 3 inches deep, and 6 inches of wire extends beyond the edge of a box. How many receptacle boxes can be wired with one box of Romex wire? (Note: A box of Romex wire contains 250 feet.)
- ANS: 17
- PTS: 3
41. A wiring job requires 5,127 feet of cable. If the cable comes in 250-foot coils, how many coils of cable are required?
- ANS: 21
- PTS: 1
42. Using a calculator, calculate $(5 + 6) \times 7 \div 11$.

ANS: 7

PTS: 1