1. Jake had 45 baseball cards

   Jake gave Andrew 8 baseball cards.

   Jake gave Ben one baseball card more than he gave Andrew and he gave Carl two baseball cards fewer than he gave Ben.

   How many baseball cards did Jake have left?

   a. 21
   b. 24
   c. 25
   d. 28
   e. 30

2. Regular inks cost $3 per bottle and premium inks cost $4 per bottle.

   A printer can print up to 25 pages per bottle of regular ink and can print up to 30 pages per bottle of premium ink.

   How much more will it cost to use premium ink rather than regular ink to print 300 pages?

   a. $1
   b. $4
   c. $5
   d. $36
   e. $40

3. In the figure below, the product of any two numbers in adjacent circles is equal to the product of the two numbers that are opposite those circles.
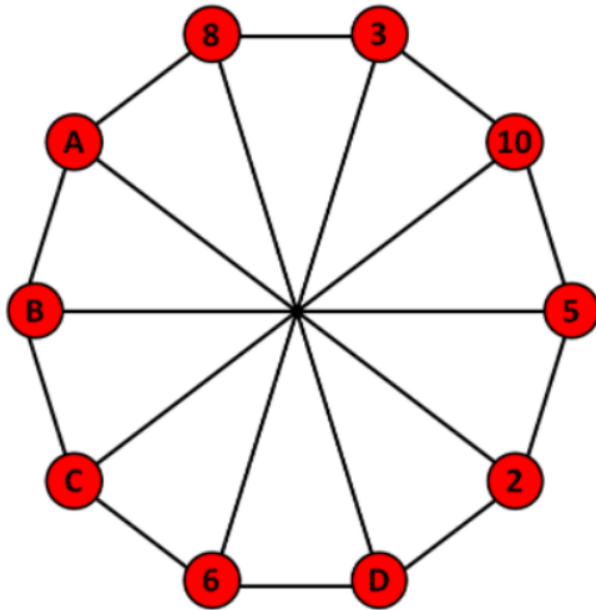
For example, the product of 8 and 3 is equal to the product of **D** and 6.

What is the value of **B**?

   a. 1
   b. 4
   c. 6
   d. 8
   e. 10

4. If the value of **x + 3y** is 80 percent of **10y**, what is the value of $\frac{x}{y}$?

   a. $\frac{1}{8}$

   b. $\frac{1}{5}$

   c. 5
   d. 8
   e. 12

5. Hubert can paint 3 bowls in 20 minutes.

   At this rate, how many hours will it take him to paint 150 bowls?

   a. 8 hours

   b. $9\frac{1}{3}$ hours

   c. 12 hours

   d. $16\frac{2}{3}$ hours

   e. 20 hours

6. A flower shop owner pays her only assistance $8 per hour for every hour that the flower shop is open.

   All other expenses for running the flower shop are $240 per day, and the flower shop is open for 8 hours each day.

   If the flower shop sells $530 worth of items on Friday, how much was the flower shop's profit for that day? (Profit = Income - Expenses)

   a. $220
   b. $226
   c. $290
   d. $466
   e. $540

7. Members of the organization donated at least $8 for the event.

   If the organization collected $645 from the donations, what is the maximum number of members who could have donated for the event?

   a. 78 members
   b. 79 members
   c. 80 members
   d. 81 members
   e. 82 members

8. Eight ice cubes, each with an edge of 2 centimeters, are melted together and the water is poured into a rectangular container.

   The inside dimensions of the container are 6 centimeters long, 5 centimeters wide, and 4 centimeters deep.
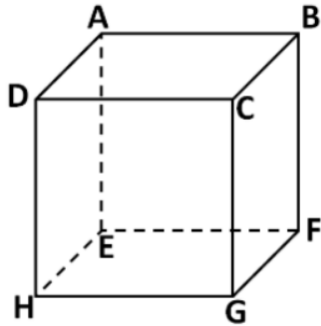
   How many additional cubic centimeters of water must be added to the container so that it is full?

   a. 26 cubic centimeters
   b. 30 cubic centimeters
   c. 56 cubic centimeters
   d. 64 cubic centimeters
   e. 120 cubic centimeters

9. The total cost of 15 cans of tuna is $11.50.

   At this rate, what is the total cost of 9 cans of tuna?

   a. $6.75
   b. $6.90
   c. $7.50
   d. $8.50
   e. $9.45

10. A cube is shown below

Which of the following statements about the cube must be true?
I. The line that passes through **D** and **E** is parallel to the line that passes through **C** and **F**.
II. The distance from **A** to **G** is equal to the distance from **B** to **H**.
III. Triangle formed by **A**, **B**, and **C** has the same area as the triangle formed by **E**, **G**, and **H**.

a. III only
b. I and II only
c. II and III only
d. I and III only
e. I, II, and III

11. Each dimension of the rectangular solid shown below is an integer greater than 1 and less than 10.

7 metres
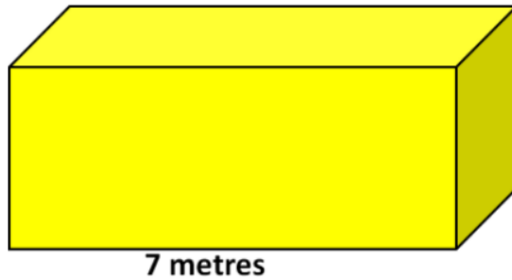
If the rectangular solid has a volume of 105 cubic meters, what is the total surface area of the rectangular solid?

a. 142 square meters
b. 156 square meters
c. 188 square meters
d. 254 square meters
e. It cannot be determined.

12. Tom bought 30 whiteboard markers and 25 permanent markers.

The cost of each permanent marker is twice the cost of each whiteboard marker.

What percent of the total cost of the markers is the price of one permanent marker?

a. 0.5 percent
b. 1.25 percent
c. 2 percent
d. 2.5 percent
e. 3 percent

13. The sack of potatoes is 20 percent heavier than the sack of carrots.

   If the sack of potatoes is X kilograms, which of the following represents the weight of the sack of carrots?

   a. $\frac{4}{5}$**X** kilograms

   b. $\frac{5}{6}$**X** kilograms

   c. $\frac{2}{3}$**X** kilograms

   d. $\frac{5}{4}$**X** kilograms

   e. $\frac{6}{5}$**X** kilograms

14. The standard unit of length in the planet Navee was the "quark", which is equivalent to 10 meters.

   Another unit of length of Navee is the "roc", which is equivalent to 14 meters.

   A distance of 70 quarks is equivalent to how many rocs?

   a. 35 rocs
   b. 49 rocs
   c. 50 rocs
   d. 75 rocs
   e. 98 rocs

15. The concert organizers found out that 150 more tickets for the concert were not sold than the seating capacity of the venue.

   The organizers decided to hold a second night for the concert.

   If the total number of tickets sold was equal to the total number who attended the concert, and if the venue was $\frac{2}{3}$ full for each of the two nights, what is the seating capacity of the venue?

   a. 100
   b. 200
   c. 225
   d. 300

e. 450

16. The newly developed Cauldron rocket can travel $\frac{2}{5}$ of a kilometer every 3 seconds.

    How far can it travel in 10 minutes?

    a. 10 kilometers
    b. 28 kilometers
    c. 36 kilometers
    d. 52 kilometers
    e. 80 kilometer

17. On the first day of spring, Robbie the Squirrel ate 50 percent of the first 80 nuts he collected, and 30 percent of the remaining nuts he collected.

    If Robbie the Squirrel ate 40 percent of all the nuts he collected on that day, how many nuts did he eat?

    a. 24 nuts
    b. 32 nuts
    c. 55 nuts
    d. 64 nuts
    e. 80 nuts

18. Carl plays a video game where he mines mana that he can exchange for power-up crystals.

    After mining 10 hours a day for six days, he was able to mine 540 000 mana.

    If he exchanged the mana he collected at a rate of 1 power-up crystal per 1 000 mana, then he averages how many power-up crystals per hour?

    a. 5 power-up crystals per hour
    b. 6 power-up crystals per hour
    c. 7 power-up crystals per hour
    d. 8 power-up crystals per hour

e. 9 power-up crystals per hour

19. Nine workers, each working at the same constant rate, can wrap 27 gifts in 4 minutes.

How many minutes would it take 4 workers, each working at the same constant rate, to wrap 60 gifts?

a. 8 minutes
b. 12 minutes
c. 16 minutes
d. 18 minutes
e. 20 minutes

20. Rudy will be 24 years old 8 years from now.

How old was he 5 years ago?

a. 11 years old
b. 16 years old
c. 19 years old
d. 27 years old
e. 37 years old

21. Arthur has 5 fewer crayons than Fred.

If Arthur gives Fred 5 crayons, Fred will then have 4 times as many crayons as Arthur.

How many crayons does Arthur have?

a. 5 crayons
b. 10 crayons
c. 15 crayons
d. 20 crayons
e. 25 crayons

22. A box contains gold, silver, and bronze medals only.

The ratio of the number of gold medals to the number of silver medals in the box is 5 to 9.

If the box contains 66 bronze medals, and there are 12 more bronze medals than silver medals, what percent of the medals in the box are gold medals?

    a. 5 percent
    b. 9 percent
    c. 12 percent
    d. 20 percent
    e. 25 percent

23. Rectangle A with 10 centimeters length and 5 centimeters width is similar to another rectangle B whose length is 30 centimeters.

Find the area of rectangle B.
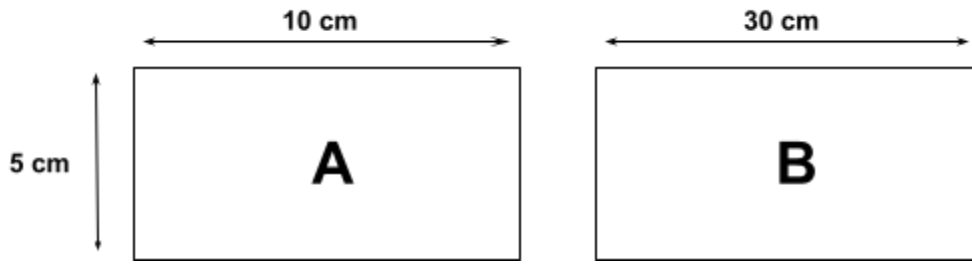
[diagram not to scale]

    a. 200 cm^2
    b. 450 cm^2
    c. 500 cm^2
    d. 600 cm^2
    e. 250 cm^2

24. Terry bought a water cooler at a 70 percent discount and a thermos at a 40 percent discount.

He paid $12 more for the thermos than for the water cooler and spent a total of $84.

What was the price of the water cooler before the discount?

    a. $76
    b. $96
    c. $100
    d. $120
    e. $124

25. The combined points that Marie and Noel got in the test was 170 points.

Marie scored 10 fewer points than twice the number of points that Noel got.

How many points did Noel get on the test?

    a. 40 points
    b. 50 points
    c. 60 points
    d. 70 points
    e. 110 points

26. Derek is 12 years younger than Jim.

In 6 years, Jim will be twice as old as Derek.

How old is Derek now?

    a. 3 years old
    b. 6 years old
    c. 12 years old
    d. 18 years old
    e. 24 years old

27. Anthony bought 6 cans of tuna and 2 cans of peaches for $48.

    Flor bought 15 cans of tuna and 1 can of peaches for $44

    How much did Anthony spend on the 2 cans of peaches?

    a. $14
    b. $20
    c. $38
    d. $29
    e. $30

28. Health potions cost 70 golds each and mana potions cost 40 golds each.

    If Gene bought both potions and he spent 520 gold, how many mana potions did he buy?

    a. 4 mana potions
    b. 6 mana potions
    c. 8 mana potions
    d. 10 mana potions
    e. 13 mana potions

29. What is the perimeter of a rectangle 12 meters long that has the same area as a rectangle that is 16 meters long and 6 meters wide?

    a. 8 meters
    b. 20 meters
    c. 40 meters
    d. 48 meters
    e. 96 meters

30. Of the 50 members of the Chess Club, 30 are males, 21 are left-handed, and 9 are both male and left-handed.

How many members of the Chess Club are neither male nor left-handed?

a. 5
b. 6
c. 7
d. 8
e. 10

31. A rectangular water container has inside dimensions of 6 meters, 5 meters, and 7 meters.

An inlet pipe supplies water on the empty container at a rate of 6 cubic meters per minute.

How many minutes will it take to fill the empty water container?

a. 35 minutes
b. 42 minutes
c. 68 minutes
d. 789 minutes
e. 107 minutes

32. A triangle, with some of its angles, is shown below.
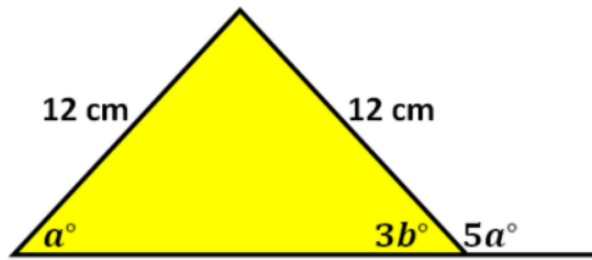
What is the value of b?

   a. 5
   b. 10
   c. 18
   d. 30
   e. 54

33. Louie will be making a 40-kilometer bike trip.

He plans to ride the first 10 kilometers of the trip at a rate of 30 kilometers per hour and ride the rest of the trip at a rate of 15 kilometers per hour.

How many minutes longer will it take him than if he rides the entire trip at 20 kilometers per hour?

   a. 15 minutes
   b. 20 minutes
   c. 35 minutes
   d. 45 minutes
   e. 50 minutes

34. Armin wants to make a box. She starts with a piece of cardboard whose length is 15 centimeters and width is 10 centimeters.

Then she cuts congruent squares with sides of 3 centimeters at the four corners.

What is the area of the cardboard after she cuts the four corners?

15 cm

10 cm

3 cm

3 cm

[diagram not to scale]
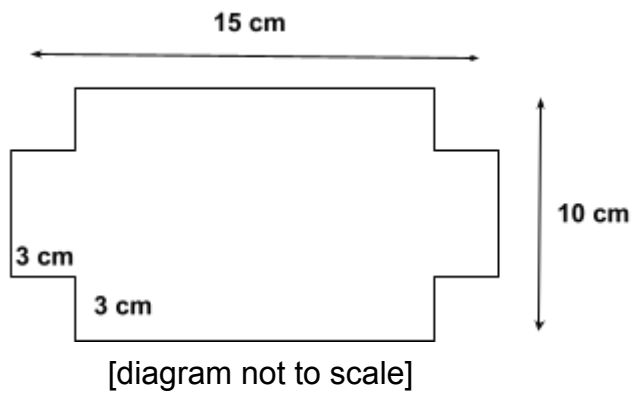
  a. 96 cm^2

  b. 114 cm^2

  c. 123 cm^2

  d. 156 cm^2

  e. 210 cm^2

35. Of the 25 students who took the driver's test, 3 of them failed.

What percent of the students passed the driver's test?

  a. 12 percent
  b. 44 percent
  c. 47 percent
  d. 88 percent
  e. 97 percent