

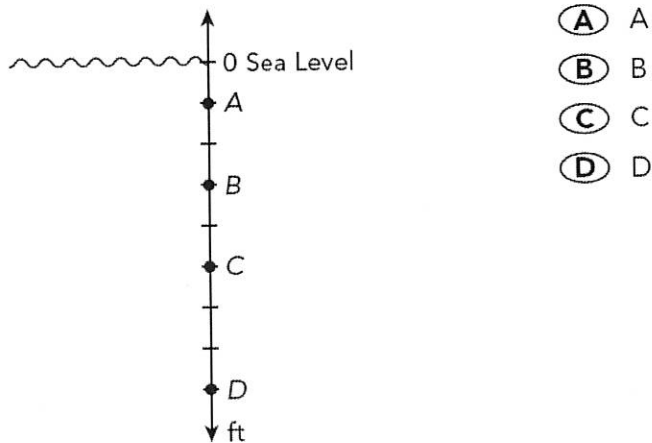
Name _____

Be sure to show all work on separate sheets of paper for Questions # 1-20

Multiple Choice (20 × 2 points = 40 points)

Fill in the circle next to the correct answer.

1. What is the greatest common factor of 36 and 126?
 (A) 6 (B) 9 (C) 12 (D) 18
2. Find the value of $7^2 - \sqrt{16} + 5^3$.
 (A) 9 (B) 21 (C) 166 (D) 170
3. The figure shows the depths beneath the surface of the ocean. If each interval on the scale represents 5 feet, at what point on the scale is a diver if he is 15 feet beneath the surface of the ocean?



4. Which of these statements are correct?
(i) $25 < -25$ (ii) $|-23| < |-31|$ (iii) $-18 > -19$ (iv) $|69| > |-69|$
 (A) (i) and (ii) (B) (i) and (iii) (C) (ii) and (iii) (D) (ii) and (iv)
5. What is the value of $\frac{1}{2} \div \frac{1}{4}$?
 (A) $\frac{1}{8}$ (B) $\frac{3}{4}$ (C) 2 (D) 8
6. The ratio of the number of red buttons to the number of yellow buttons in a box is 3 : 4. If there are 36 yellow buttons, how many red buttons are there?
 (A) 12 (B) 27 (C) 32 (D) 36
7. A typist can type 3 pages in 20 minutes. How many pages can he type in an hour?
 (A) 9 (B) 12 (C) 15 (D) 18

Name _____

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8. Nina had 56 inches of ribbon. She used 42 inches to make some decorations. What percent of the ribbon did Nina use to make the decorations?

- (A) 14% (B) 25% (C) 42% (D) 75%

9. Carlos budgeted \$2,000 to spend on a vacation. If he spent \$150 each day, which expression represents how much money Carlos had left after x days?

- (A) $1,850x$ dollars (B) $(2,000 - 150x)$ dollars
(C) $150x$ dollars (D) $(2,000 + 150x)$ dollars

10. What is the value of the expression $3(x + 2) - \frac{4x}{5}$ when $x = 10$?

- (A) 8 (B) 12 (C) 24 (D) 28

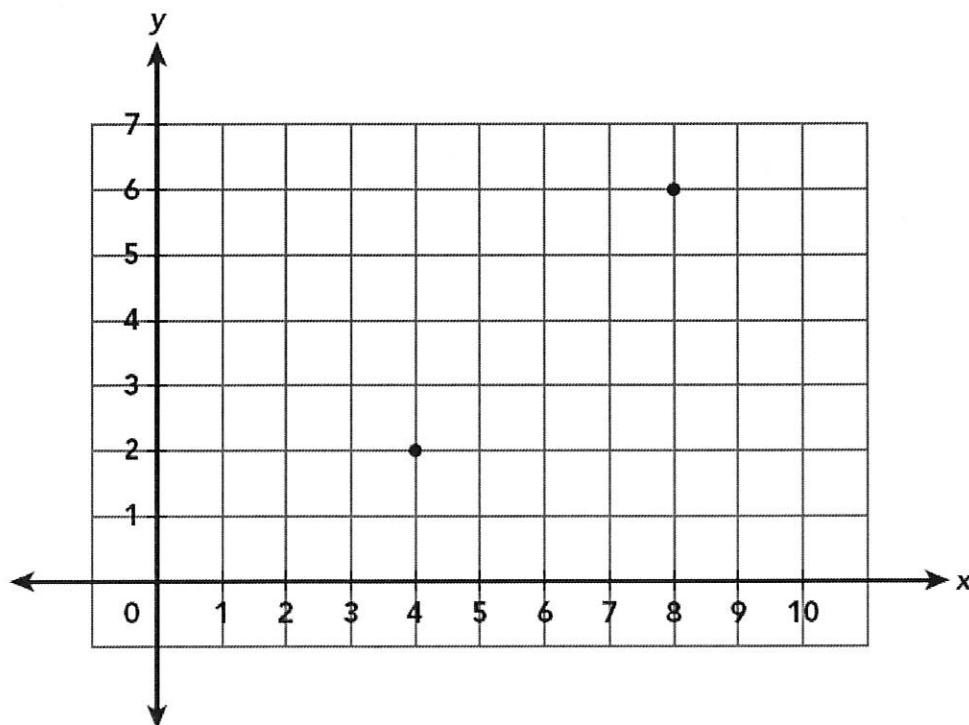
11. Simplify $2(5 + w) + 3(w + 2)$.

- (A) $2w + 12$ (B) $2w + 16$ (C) $5w + 16$ (D) $16w$

12. What is the solution of the equation $\frac{4}{7}p = 56$?

- (A) 8 (B) 14 (C) 32 (D) 98

13. Samuel plots two points on the coordinate plane below. He wants to plot two more points and then connect all four points to form a square. Which two points should Samuel plot to form a square?

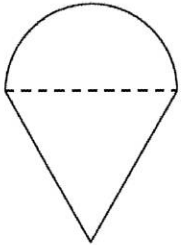


- (A) (4, 2) and (8, 6)
(B) (4, 6) and (6, 6)
(C) (4, 2) and (6, 2)
(D) (4, 6) and (8, 2)

Name _____

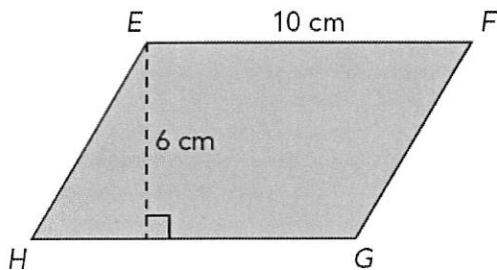
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14. The figure is made up of a semicircle of radius 10.5 inches and an equilateral triangle. Find the perimeter of the figure. Use $\frac{22}{7}$ as an approximation for π .



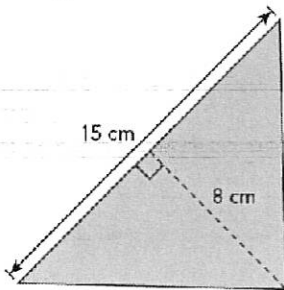
- (A) 54 in.
- (B) 75 in.
- (C) 96 in.
- (D) 108 in.

15. Parallelogram $EFGH$ has the dimensions shown below.

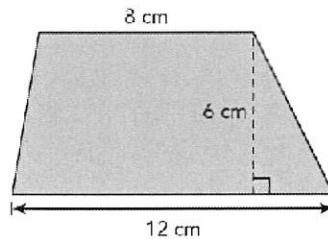


Which of the following figures **do not** have the same area as parallelogram $EFGH$?

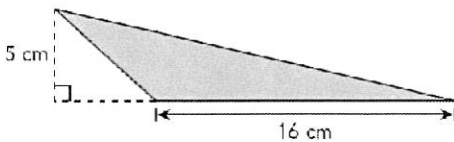
(A)



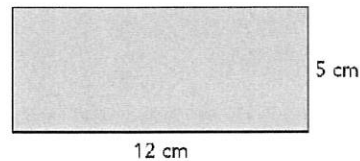
(B)



(C)



(D)



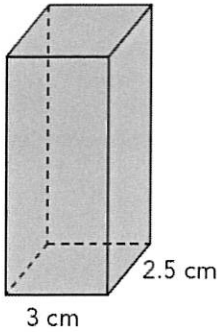
16. Max set the sprinkler system in a yard so that each pop-up sprinkler head would water a circular area with a radius of 14 feet. What area of the lawn will one sprinkler head cover? Use $\frac{22}{7}$ as an approximation for π .

- (A) 88 ft²
- (B) 176 ft²
- (C) 616 ft²
- (D) 2,464 ft²

Name _____

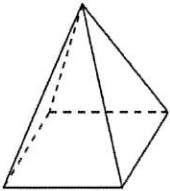
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17. The volume of the rectangular solid shown is 52.5 cubic centimeters. What is its height?

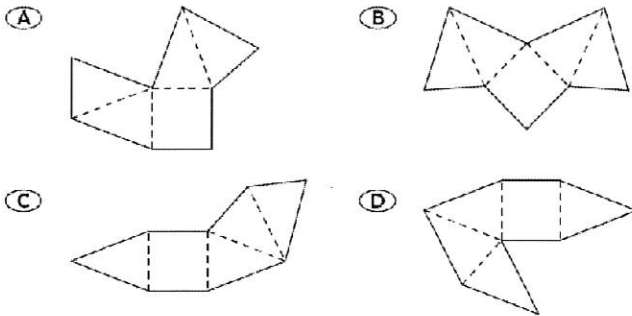


- (A) 7 cm
- (B) 21 cm
- (C) 45 cm
- (D) 47 cm

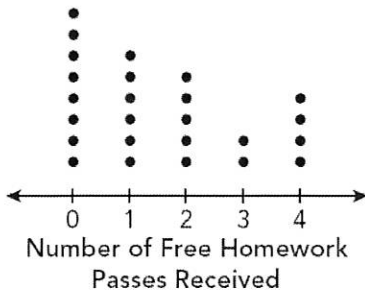
18. Bob folded a net to make the solid shown below.



Which of the following nets could represent the net Bob folded?



19. The dot plot shows the number of free homework passes received by students in a class. Each dot represents 1 student.



What percent of the students in the class did not receive a free homework pass?

- (A) 8%
- (B) 16%
- (C) 32%
- (D) 68%

Name _____

Be sure to show all work next to question for #21-42

20. The number of e-mails received daily at a business for two weeks are shown below.

19, 28, 16, 10, 18, 22, 15, 15, 11, 26

What are the mean and median number of e-mails received in the two weeks?

- (A) mean = 15 e-mails, median = 17 e-mails
- (B) mean = 15 e-mails, median = 20 e-mails
- (C) mean = 18 e-mails, median = 17 e-mails
- (D) mean = 18 e-mails, median = 20 e-mails

Short Answer and/or Constructed Response

(Questions 21 to 35: 15×2 points = 30 points, Questions 36 to 40: 5×4 points = 20 points, Questions 41 and 42: 2×5 points = 10 points)

Write your answer in the space given.

21. Draw a horizontal number line to represent a set of mixed numbers from 2 to 5, with an interval of $\frac{1}{4}$ between each pair of mixed numbers.

22. Write 150 as a product of its prime factors.

23. Dexter mows his lawn every 12 days and washes his windows every 30 days. He mowed his lawn and washed his windows today. How many days from now will it be until he next mows his lawn and washes his windows on the same day?

Name _____

Be sure to show all work next to question for #21-42

- 24.** A box has a shipping limit of 30 pounds. If a factory wants to ship toys that weigh 0.75 pound each, how many toys can fit in a box?

- 25.** Write $56 : 72$ in simplest form.

- 26.** Monica's group receives \$6 for every dozen paper flowers they sell at a charity bazaar. At this rate, how many paper flowers must they sell if they want to raise \$300?

- 27.** If 25% of a number is 20, what is 60% of the number?

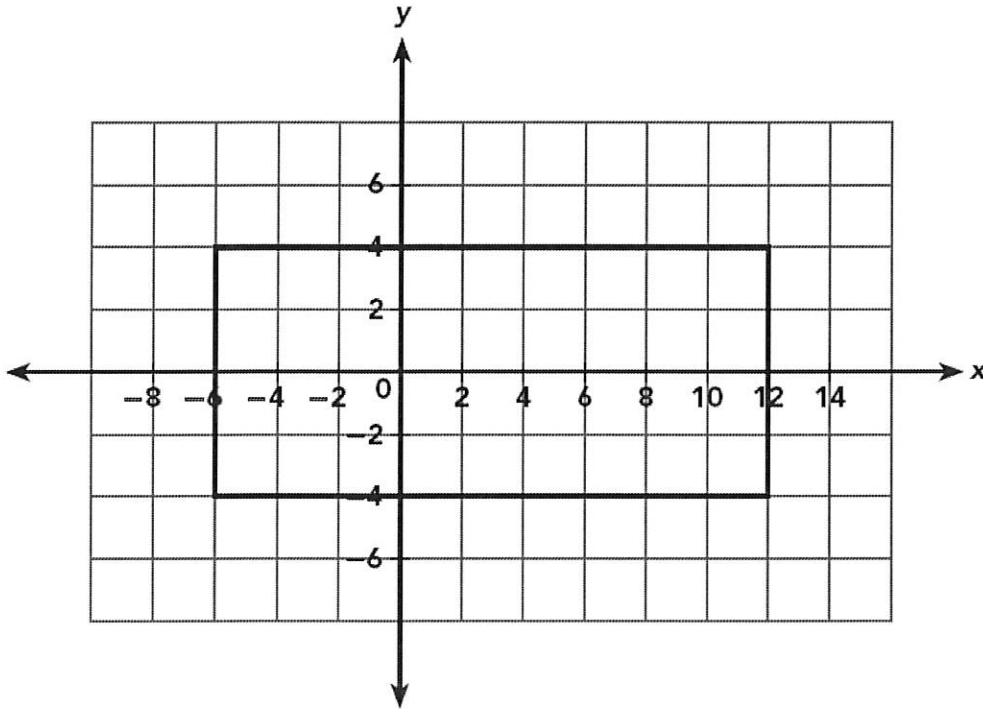
- 28.** Janice has twice as many stickers as Melvin. Ryan has 5 more stickers than Janice. If Melvin has h stickers, how many stickers does Ryan have?

- 29.** The lake at which Maggie is fishing has a 36 fish limit. If she has already caught 7 fish, write an inequality for the number of fish, f , she can catch.

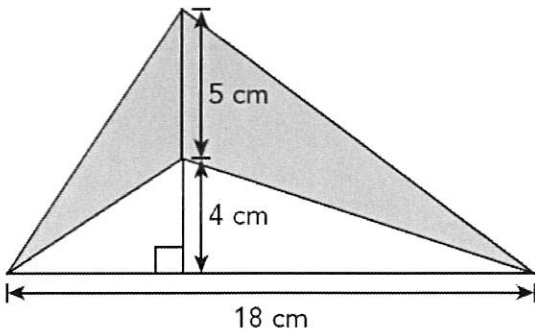
Name _____

Be sure to show all work next to question for #21-42

30. The diagram shows the plan of a rectangular vegetable patch. The side length of each grid square is 2 meters. Find the perimeter of the vegetable patch.



31. What is the area of the shaded part of the figure?



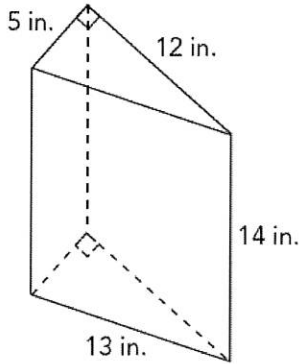
32. Shirley wants to find the distance her unicycle moves on the sidewalk when the tire makes one complete revolution. If the diameter of her unicycle tire is 14 inches, find the distance the unicycle moves in one complete revolution.

Use $\frac{22}{7}$ as an approximation for π .

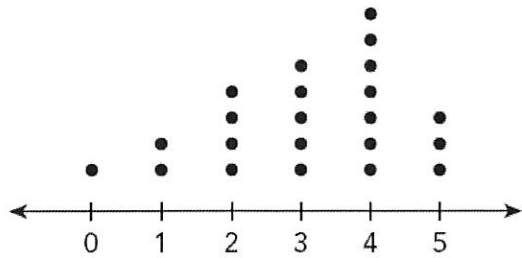
Name _____

Be sure to show all work next to question for #21-42

33. The figure below shows a gift box in the shape of a triangular prism. Find the surface area, in square inches, of the gift box.



34. The dot plot shows the number of hours a group of children spent using the Internet during a certain weekend. Briefly describe the data distribution.



Number of Hours Spent Using the Internet

35. Nick's scores on 6 science tests are listed below.

87, 93, 82, 91, 93, 85

As a bonus, the science teacher is going to add 3 points to each test.

How does the mean of the new test scores compare with the mean of the original test scores?

Name _____

Be sure to show all work next to question for #21-42

Solve. Show your work.

- 36.** An electrical cord was cut into three pieces in the ratio 5 : 3 : 7.
The difference in length between the longest piece and the shortest piece is 64 centimeters.
- a) Find the length of the longest piece.

 - b) Find the length of the electrical cord, in meters, before it was cut.
- 37.** The number of visitors to an exhibition in the first week was 50,000. In the second week, there were 72,000 visitors.
- a) Find the percent increase in the number of visitors from the first week to the second week.

 - b) The number of visitors in the third week was 12% more than in the second week. Calculate the number of visitors in the third week.
- 38.** The distance between City A and City B is 340 miles.
- a) Mike traveled on a bus from City A to City B. His journey took 5 hours.
What was the average speed of the bus?

 - b) Ken left City B at 3:20 P.M., and drives a car at a speed of 80 miles per hour. What time did he reach City A?

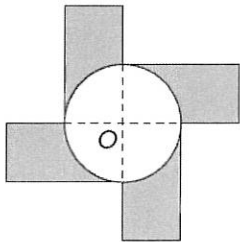
Name _____

Be sure to show all work next to question for #21-42

39. Bob has k marbles. Carol has 3 times as many marbles as Bob. Alice has 5 fewer marbles than Carol.
- a) How many marbles do they have in all? Express your answer in terms of k in simplest form.

b) If $k = 9$, how many more marbles does Alice have than Bob?

40. The figure is made up of a circle and four identical rectangles. Point O is the center of the circle. Each rectangle has a perimeter of 42 inches. The width of each rectangle is half its length. Find the perimeter of the shaded part of the figure. Use 3.14 as an approximation for π .



41. A rectangular tank 28 centimeters by 12 centimeters by 15 centimeters is $\frac{3}{4}$ -filled with water. The water is then poured into a second rectangular tank of length 35 centimeters and width 18 centimeters, filling half of the tank.
- a) Find the height of the second tank.
- b) The second tank is then placed under a faucet. If water flows from the faucet at a rate of 0.18 liter per minute, find the time needed to fill the second tank completely.
(1 L = 1,000 cm³)

Name _____

Be sure to show all work next to question for #21-42

42. A science class performed an experiment by rolling a model car down a ramp 30 times and measuring the distance the car traveled each time. The results are shown in the table.

Distance Traveled (feet)	Frequency
8.0–8.9	x
9.0–9.9	11
10.0–10.9	3
11.0–11.9	x
12.0–12.9	4

- a) Find the value of x .
- b) Draw a histogram to represent the data.
- c) What percent of the number of times the car was rolled did the car travel 10 feet or more? Round your answer to 2 decimal places.