

Mathletes Challenge 2014

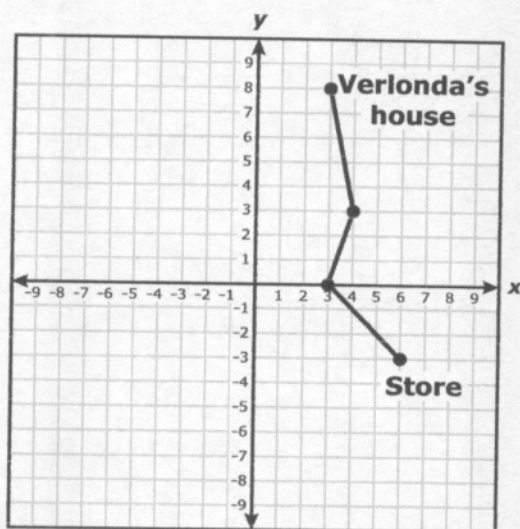
Round 1

Test 2

DIRECTIONS

Read each question carefully. For a multiple-choice question, determine the best answer to the question from the four answer choices provided. For a griddable question, determine the best answer to the question. Then fill in the answer on your answer document.

- 1 The route that Verlonda takes from her house to a store is represented on the grid below.



Which ordered pair represents a point on Verlonda's route?

- A $(0, -3)$
- B $(-3, 6)$
- C $(3, 4)$
- D $(3, 8)$

- 2 Angelo's pet rabbit weighs 1 pound less than twice the weight of Carmen's pet rabbit. Angelo's rabbit weighs 9 pounds. Which equation can be used to find w , the weight of Carmen's pet rabbit?

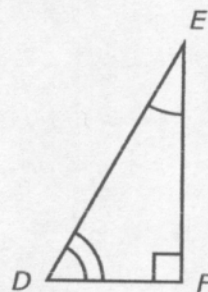
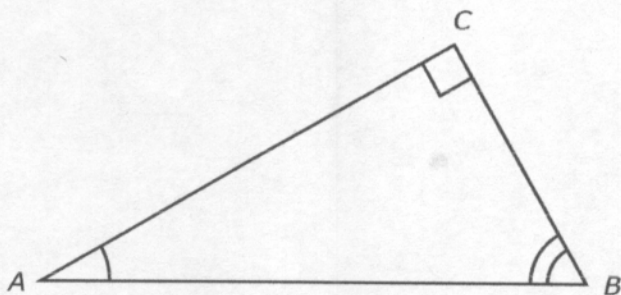
F $9 = 2w + 1$

G $9 = 2w - 1$

H $w - 9 = 1$

J $w + 9 = 1$

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- 3 The triangles shown below are similar.



Which line segment corresponds to \overline{AC} ?

A \overline{BC}

B \overline{EF}

C \overline{DE}

D \overline{DF}

- 4 A storage trunk is shaped like a rectangular prism. The trunk's volume is 18 cubic feet. The length of the trunk is 6 feet, and the width of the trunk is 2 feet. What is the height of this trunk?

F 12 feet

G $3\frac{1}{3}$ feet

H 6 feet

J Not here

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- 5 Jackie has a puzzle book that contains a total of 65 puzzles. She has completed $\frac{2}{5}$ of the puzzles in the book. If Jackie completes 13 more puzzles, what is the total number of puzzles that she will have completed in the book?

A 26, because $\frac{2}{5}(65) = 26$

B 52, because $\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$ and $\frac{4}{5}(65) = 52$

C 39, because $\frac{2}{5}(65) = 26$ and $26 + 13 = 39$

D Not here

- 6 The table below shows the number of minutes Melissa ran each day during three weeks when she was training for a race.

Melissa's Training Plan

	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
Week 1	10	10	10	12	12	0	15
Week 2	15	18	8	18	20	0	20
Week 3	22	22	20	24	24	0	26

Which statement is best supported by the data in the table?

- F** The total number of minutes Melissa ran in Week 3 is twice the total number of minutes she ran in Week 1.
- G** The total number of minutes Melissa ran each day decreased from Week 1 to Week 2.
- H** The total number of minutes Melissa ran in Week 3 is more than the total number of minutes she ran in Weeks 1 and 2 combined.
- J** The total number of minutes Melissa ran each week increased by about 5 minutes per week.

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- 7 Which arithmetic sequence is represented by the expression $3n + 1$, where n represents the position of a term in the sequence?

- A** 3, 6, 9, 12, 15, . . .
- B** 3, 4, 5, 6, 7, . . .
- C** 4, 5, 6, 7, 8, . . .
- D** 4, 7, 10, 13, 16, . . .

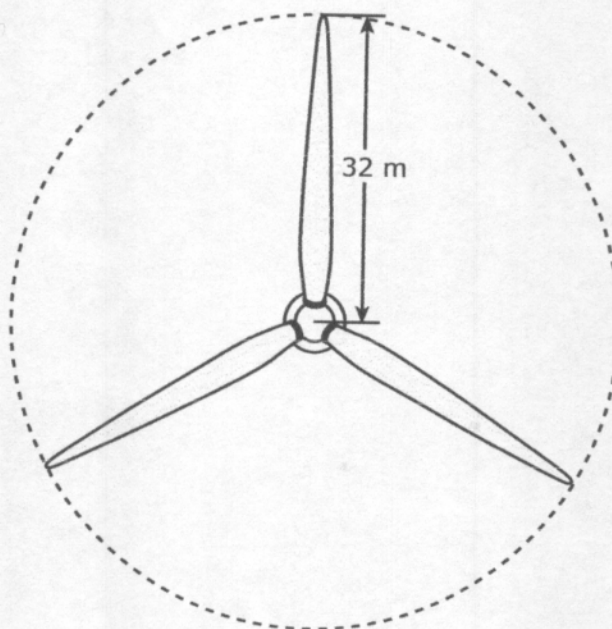
- 8** The list below shows the number of minutes Addison spent reading on each of six days.

90, 60, 89, 94, 60, 93

Which two measures of these data best describe the typical number of minutes Addison spent reading each day?

- F** Mean and mode
 - G** Mean and median
 - H** Mode and range
 - J** Median and range
-
- 9** Of the 250 sheep in a flock, 34% are white. What is the total number of white sheep in the flock?
- A** 85
 - B** 216
 - C** 165
 - D** Not here

- 10 The diagram below models the length from the center of a wind turbine to the tip of one of its blades.



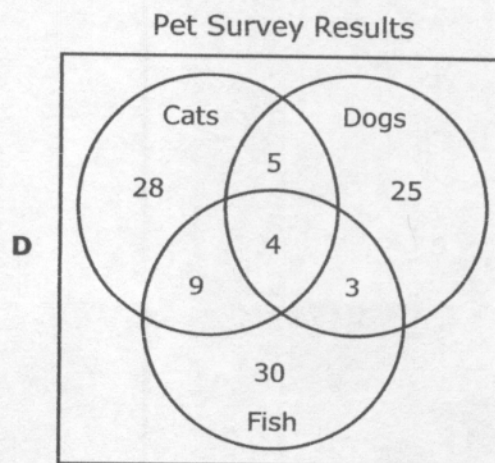
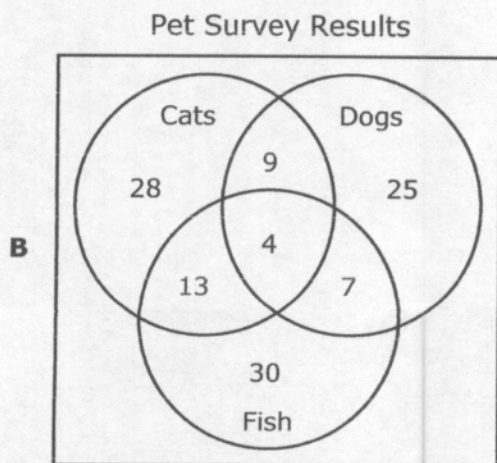
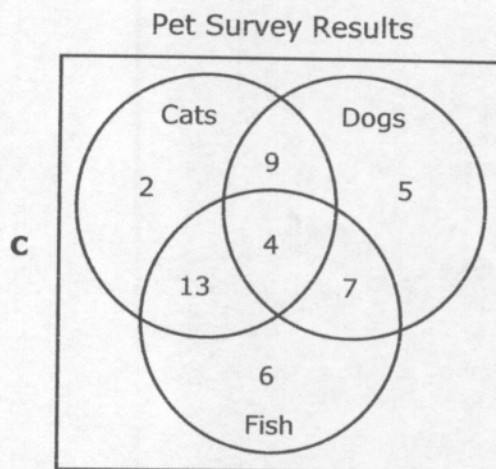
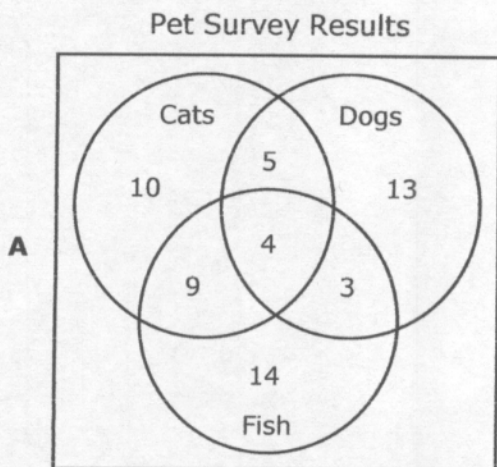
Which of these is closest to the total area covered by the blade when the turbine makes 1 revolution?

- F $3,215 \text{ m}^2$
- G 100 m^2
- H $1,024 \text{ m}^2$
- J 201 m^2

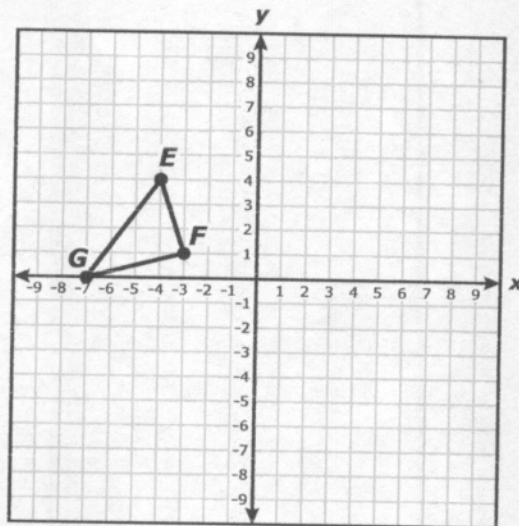
- 11 Isaac surveyed his classmates to find out what types of pets they had. The pet survey results are listed below.

- A total of 25 students had dogs.
- A total of 28 students had cats.
- A total of 30 students had fish.
- There were 9 students who had only dogs and cats.
- There were 13 students who had only cats and fish.
- There were 7 students who had only dogs and fish.
- There were 4 students who had dogs, cats, and fish.

Which Venn diagram best represents the pet survey results?



- 12 Triangle EFG is shown on the grid below.



If triangle EFG is reflected across the y -axis to form triangle $E'F'G'$, which ordered pair represents the coordinates of F' ?

- F $(3, -1)$
- G $(3, 1)$
- H $(-3, -1)$
- J $(1, -3)$

- 13** A recipe for a dessert requires 3 cups of strawberries for every $1\frac{1}{2}$ cups of yogurt used. At this rate, how much yogurt should be used if 2 cups of strawberries are used?

A 1 c

B 9 c

C $\frac{3}{4}$ c

D $\frac{1}{2}$ c

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- 14** Graysen has a green number cube and a white number cube. The faces of the cubes are numbered 1 through 6. Graysen will roll each cube one time. What is the probability that the green cube will land with an even number faceup and the white cube will land with a number greater than 2 faceup?

F $\frac{1}{9}$

G $\frac{1}{36}$

H $\frac{1}{3}$

J $\frac{1}{6}$

- 15** Ashton needs a total of \$1.50 in quarters for a coin-operated car wash. He already has \$0.75. Which equation can be used to find q , the number of additional quarters Ashton needs in order to have enough money for the car wash?

A $1.5 = 0.75q + 0.25$

B $0.75 = 1.5q + 0.25$

C $0.75 = 0.25q + 1.5$

D $1.5 = 0.25q + 0.75$

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- 16** Mr. Stein is purchasing 2.25 pounds of meat that costs \$2.80 per pound. How much change should Mr. Stein receive if he gives the cashier \$20.00?

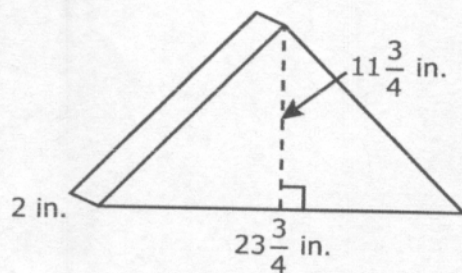
F \$6.30

G \$13.70

H \$14.95

J \$2.52

- 17** The triangular prism shown below represents a display case.



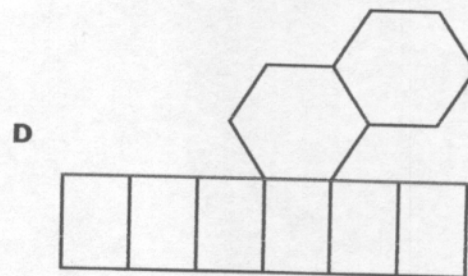
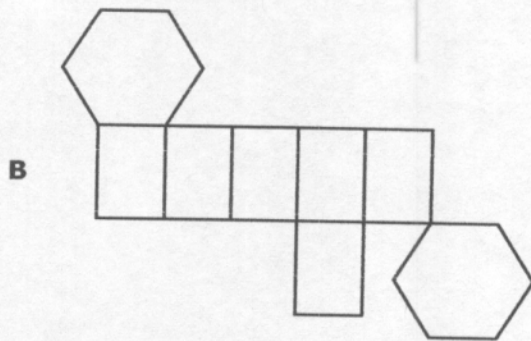
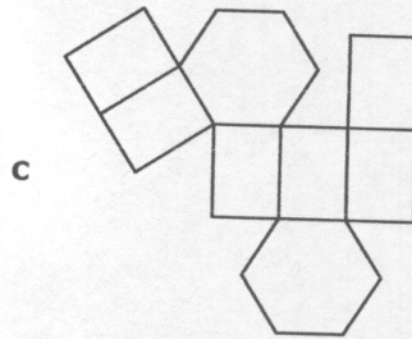
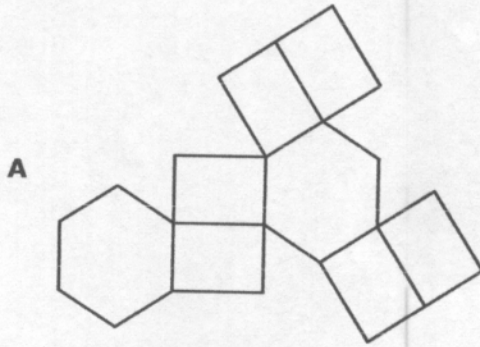
Which of the following is the best estimate of the volume of the display case in cubic inches?

- A** 144 in.³
- B** 576 in.³
- C** 288 in.³
- D** 72 in.³

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- 18** A sports drink contains 8% fruit juice. How is this percent written as a decimal?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

19 Which net can be folded to form a hexagonal prism?



20 A total of 40 people made cakes for a bake sale. Each person made 3 cakes. Mrs. Sánchez found that 15% of these cakes were chocolate. How many chocolate cakes were made for the bake sale?

- F** 120
- G** 6
- H** 18
- J** Not here

Mathletes Round 1 - Test 2

KEY



1. ☐ A ☐ B ☐ C ☒ D
2. ☐ F ☒ G ☐ H ☐ J
3. ☐ A ☒ B ☐ C ☐ D
4. ☐ F ☐ G ☐ H ☒ J
5. ☐ A ☐ B ☒ C ☐ D
6. ☒ F ☐ G ☐ H ☐ J
7. ☐ A ☐ B ☐ C ☒ D
8. ☐ F ☒ G ☐ H ☐ J
9. ☒ F ☐ B ☐ C ☐ D
10. ☒ F ☐ G ☐ H ☐ J
11. ☐ A ☐ B ☒ C ☐ D
12. ☐ F ☒ G ☐ H ☐ J
13. ☒ F ☐ B ☐ C ☐ D
14. ☐ F ☐ G ☒ H ☐ J
15. ☐ A ☐ B ☐ C ☒ D
16. ☐ F ☒ G ☐ H ☐ J
17. ☐ A ☐ B ☒ C ☐ D
18. ☐ F ☐ G ☐ H ☐ J D.O.B
19. ☒ F ☐ B ☐ C ☐ D
20. ☐ F ☐ G ☒ H ☐ J