USA
AMC 8
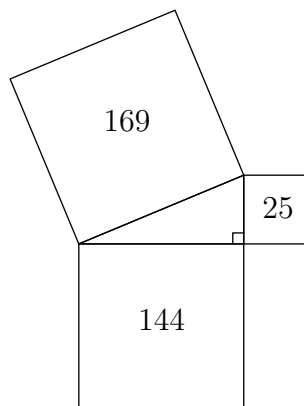### 2003

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1. Jamie counted the number of edges of a cube, Jimmy counted the number of corners, and Judy counted the number of faces. They then added the three numbers. What was the resulting sum?

    (A) 12 **(B)** 16 **(C)** 20 **(D)** 22 **(E)** 26

2. Which of the following numbers has the smallest prime factor?

    (A) 55 **(B)** 57 **(C)** 58 **(D)** 59 **(E)** 61

3. A burger at Ricky C's weighs 120 grams, of which 30 grams are fi

    ller. What percent of the burger is not fi

    ller?

    (A) 60% **(B)** 65% **(C)** 70% **(D)** 75% **(E)** 90%

4. A group of children riding on bicycles and tricycles rode past Billy Bob's house. Billy Bob counted 7 children and 19 wheels. How many tricycles were there?

    (A) 2 **(B)** 4 **(C)** 5 **(D)** 6 **(E)** 7

5. If 20% of a number is 12, what is 30% of the same number?

    (A) 15 **(B)** 18 **(C)** 20 **(D)** 24 **(E)** 30

6. Given the areas of the three squares in the figure, what is the area of the interior triangle?
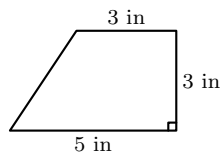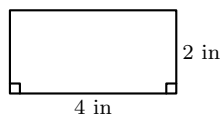

    (A) 13 **(B)** 30 **(C)** 60 **(D)** 300 **(E)** 1800

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7 | Blake and Jenny each took four 100 point tests. Blake averaged 78 on the four tests. Jenny scored 10 points higher than Blake on the first test, 10 points lower on the second test, and 20 points higher on both the third and fourth test. What is the difference between Blake's average on the four tests and Jenny's average on the four tests?

(A) 10   (B) 15   (C) 20   (D) 25   (E) 40

8 | **Bake Sale** Four friends, Art, Roger, Paul and Trisha, bake cookies, and all cookies have the same thickness. The shapes of the cookies differ, as shown.
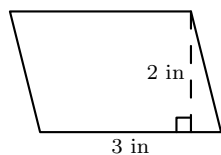
∘ Art's cookies are trapezoids:
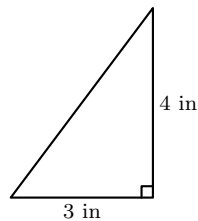

∘ Roger's cookies are rectangles:

∘ Paul's cookies are parallelograms:
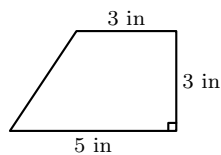

∘ Trisha's cookies are triangles:

Each friend uses the same amount of dough, and Art makes exactly 12 cookies. Who gets the fewest cookies from one batch of cookie dough?

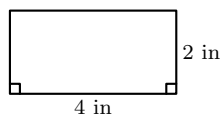**(A)** Art **(B)** Roger **(C)** Paul **(D)** Trisha **(E)** There is a tie for fewest.

|9| **Bake Sale** Four friends, Art, Roger, Paul and Trisha, bake cookies, and all cookies have the same thickness. The shapes of the cookies differ, as shown.
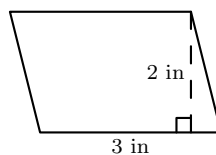
○ Art's cookies are trapezoids:
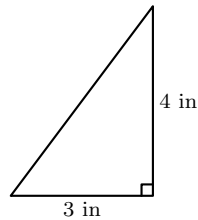

○ Roger's cookies are rectangles:

○ Paul's cookies are parallelograms:
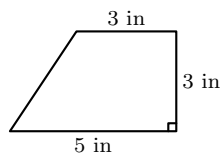
∘ Trisha's cookies are triangles:

Each friend uses the same amount of dough, and Art makes exactly 12 cookies. Art's cookies sell for 60 cents each. To earn the same amount from a single batch, how much should one of Roger's cookies cost in cents?
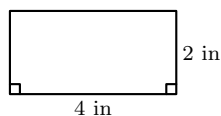
(A) 18 **(B)** 25 **(C)** 40 **(D)** 75 **(E)** 90

10 **Bake Sale** Four friends, Art, Roger, Paul and Trisha, bake cookies, and all cookies have the same thickness. The shapes of the cookies differ, as shown.
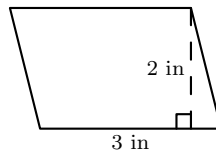
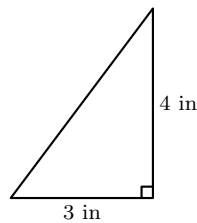∘ Art's cookies are trapezoids:

∘ Roger's cookies are rectangles:

∘ Paul's cookies are parallelograms:

○ Trisha's cookies are triangles:

Each friend uses the same amount of dough, and Art makes exactly 12 cookies. How many cookies will be in one batch of Trisha's cookies?

(A) 10   (B) 12   (C) 16   (D) 18   (E) 24

11. Business is a little slow at Lou's Fine Shoes, so Lou decides to have a sale. On Friday, Lou increases all of Thursday's prices by 10 percent. Over the weekend, Lou advertises the sale: "Ten percent off the listed price. Sale starts Monday." How much does a pair of shoes cost on Monday that cost 40 dollars on Thursday?
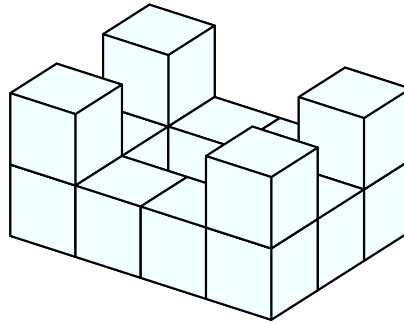
(A) 36   (B) 39.60   (C) 40   (D) 40.40   (E) 44

12. When a fair six-sided dice is tossed on a table top, the bottom face cannot be seen. What is the probability that the product of the 5 faces than can be seen is divisible by 6?

(A) 1/3   (B) 1/2   (C) 2/3   (D) 5/6   (E) 1

13. Fourteen white cubes are put together to form the fi

gure on the right. The complete surface of the

figure, including the bottom, is painted red. The

figure is then separated into individual cubes. How many of the individual cubes have exactly four red faces?

(A) 4   (B) 6   (C) 8   (D) 10   (E) 12

14 In this addition problem, each letter stands for a different digit. $\begin{array}{ccc} & T & W & O \\ + & T & W & 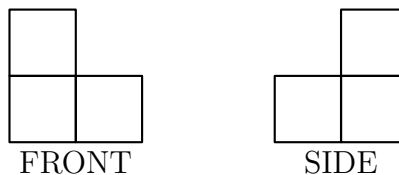O \\ \hline F & O & U & R \end{array}$ If T = 7 and the letter O represents an even number, what is the only possible value for W?

(A) 0   (B) 1   (C) 2   (D) 3   (E) 4

15 A fi

gure is constructed from unit cubes. Each cube shares at least one face with another cube. What is the minimum number of cubes needed to build a fi

gure with the front and side views shown?

FRONT   SIDE

(A) 3   (B) 4   (C) 5   (D) 6   (E) 7

16 Ali, Bonnie, Carlo, and Dianna are going to drive together to a nearby theme park. The car they are using has 4 seats: 1 Driver seat, 1 front passenger seat, and 2 back passenger seat. Bonnie and Carlo are the only ones who know how to drive the car. How many possible seating arrangements are there?
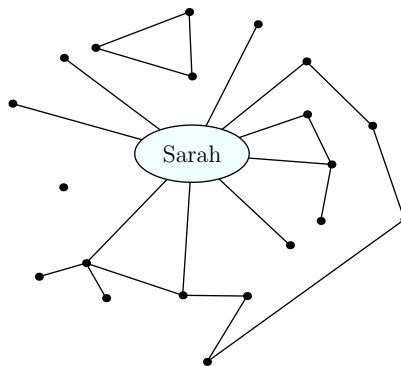
(A) 2   (B) 4   (C) 6   (D) 12   (E) 24

17 The six children listed below are from two families of three siblings each. Each child has blue or brown eyes and black or blond hair. Children from the same family have at least one of these characteristics in common. Which two children are Jim's siblings?

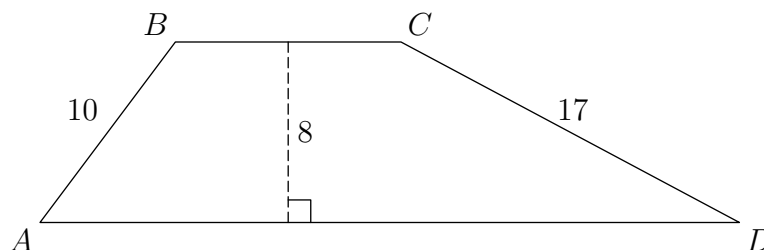| Child	Eye Color	Hair Color
Benjamin	Blue	Black
Jim	Brown	Blonde
Nadeen	Brown	Black
Austin	Blue	Blonde
Tevyn	Blue	Black
Sue	Blue	Blonde

(A) Nadeen and Austin   **(B)** Benjamin and Sue   **(C)** Benjamin and Austin   **(D)** Nadeen and Tev

18 Each of the twenty dots on the graph below represents one of Sarah's classmates. Classmates who are friends are connected with a line segment. For her birthday party, Sarah is inviting only the following: all of her friends and all of those classmates who are friends with at least one of her friends. How many classmates will not be invited to Sarah's party?
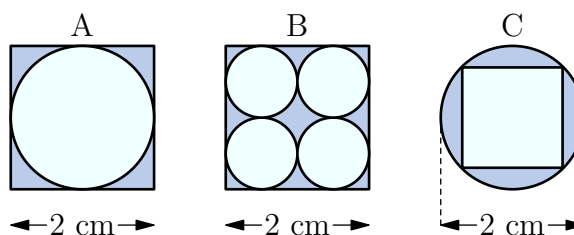

(A) 1   **(B)** 4   **(C)** 5   **(D)** 6   **(E)** 7

19 How many integers between 1000 and 2000 have all three of the numbers 15, 20, and 25 as factors?

(A) 1   **(B)** 2   **(C)** 3   **(D)** 4   **(E)** 5

20 What is the measure of the acute angle formed by the hands of the clock at 4 : 20 PM?

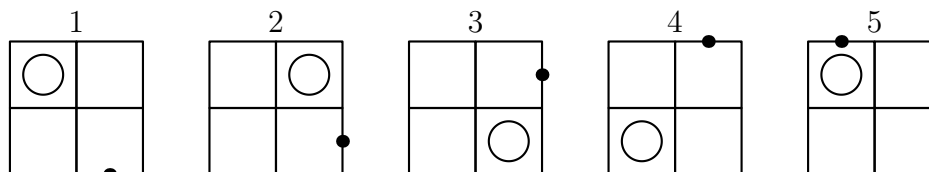**(A)** 0   **(B)** 5   **(C)** 8   **(D)** 10   **(E)** 12

21 The area of trapezoid $ABCD$ is 164cm^2. The altitude is 8cm, AB is 10cm, and CD is 17cm. What is BC, in centimeters?

(**A**) 9   (**B**) 10   (**C**) 12   (**D**) 15   (**E**) 20

22 The following figures are composed of squares and circles. Which figure has a shaded region with largest area?
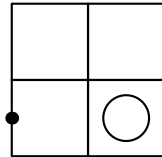

(**A**) A only   (**B**) B only   (**C**) C only   (**D**) both A and B   (**E**) all are equal

23 In the pattern below, the cat (denoted as a large circle in the figures below) moves clockwise through the four squares and the mouse (denoted as a dot in the figures below) moves counterclockwise through the eight exterior segments of the four squares.
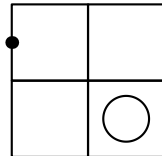
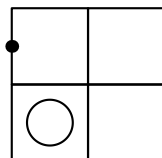If the pattern is continued, where would the cat and mouse be after the 247th move?

(A)

(B)

(C)

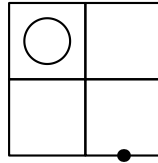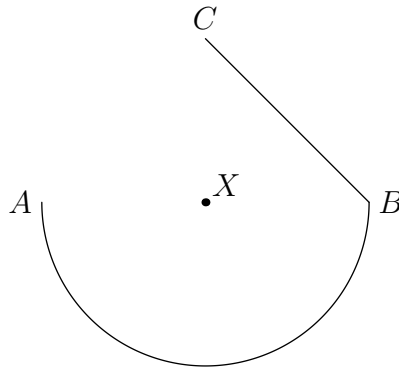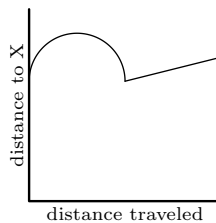**(D)**

(E)

24 A ship travels from point A to point B along a semicircular path, centered at Island X. Then it travels along a straight path from B to C. Which of these graphs best shows the ship's distance from Island X as it moves along its course?
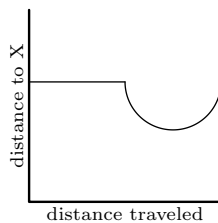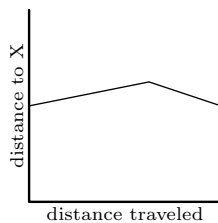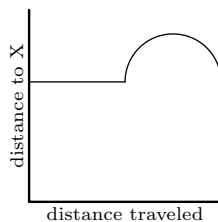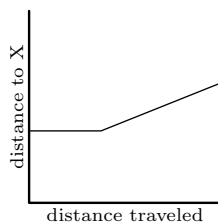

(A)

(B)

distance to X

distance traveled

(C)

distance to X

distance traveled

(D)

distance to X
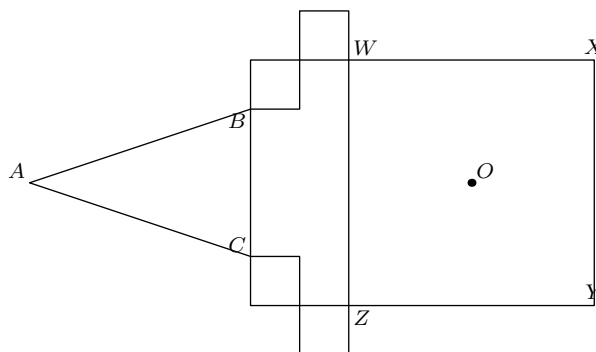
distance traveled

(E)

distance to X

distance traveled

$\boxed{25}$ In the

figure, the area of square WXYZ is 25cm^2. The four smaller squares have sides 1 cm long, either parallel to or coinciding with the sides of the large square. In ΔABC, $AB = AC$, and when ΔABC is folded over side BC, point A coincides with O, the center of square WXYZ. What is the area of ΔABC, in square centimeters?

(A) $\frac{15}{4}$ **(B)** $\frac{21}{4}$ **(C)** $\frac{27}{4}$ **(D)** $\frac{21}{2}$ **(E)** $\frac{27}{2}$