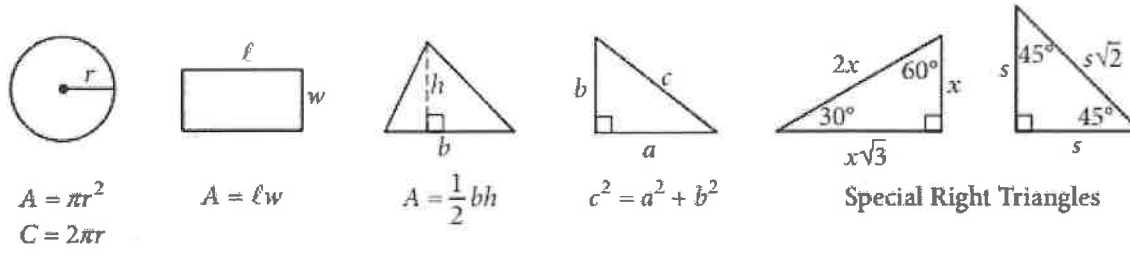


SAT Practice Set #4A

Calculator

Formulas



$A = \pi r^2$   
 $C = 2\pi r$

$A = \ell w$

$A = \frac{1}{2}bh$

$c^2 = a^2 + b^2$

Special Right Triangles

$V = \ell wh$

$V = \pi r^2 h$

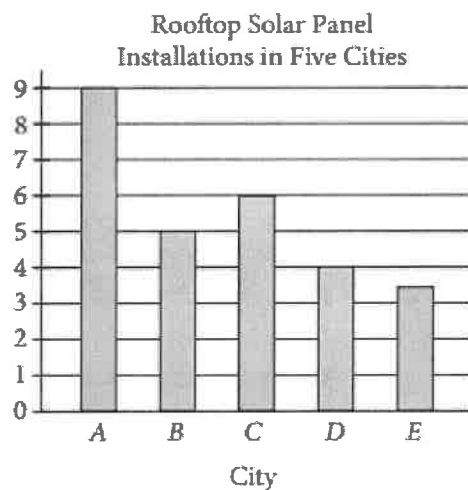
$V = \frac{4}{3}\pi r^3$

$V = \frac{1}{3}\pi r^2 h$

$V = \frac{1}{3}\ell wh$

The number of degrees of arc in a circle is 360.  
 The number of radians of arc in a circle is  $2\pi$ .  
 The sum of the measures in degrees of the angles of a triangle is 180.

1.



The number of rooftops with solar panel installations in 5 cities is shown in the graph above. If the total number of installations is 27,500, what is an appropriate label for the vertical axis of the graph?

- A) Number of installations (in tens)
- B) Number of installations (in hundreds)
- C) Number of installations (in thousands)
- D) Number of installations (in tens of thousands)

2.

Which of the following numbers is NOT a solution of the inequality  $3x - 5 \geq 4x - 3$  ?

- A) -1
- B) -2
- C) -3
- D) -5

$$-5 \geq x - 3$$

$$-2 \geq x$$

$$x \leq -2$$

3.

Lengths of Fish (in inches)						
8	9	9	9	10	10	11
11	12	12	12	12	13	13
13	14	14	15	15	16	24

The table above lists the lengths, to the nearest inch, of a random sample of 21 brown bullhead fish. The outlier measurement of 24 inches is an error. Of the mean, median, and range of the values listed, which will change the most if the 24-inch measurement is removed from the data?

- A) Mean
- B) Median
- C) Range
- D) They will all change by the same amount.

4.

If  $16 + 4x$  is 10 more than 14, what is the value of  $8x$  ?

- A) 2
- B) 6
- C) 16
- D) 80

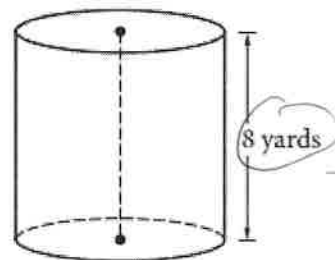
$$16 + 4x = 14 + 10$$

$$4x = 8$$

$$x = 2$$

$$8(2) = 16$$

5.



A dairy farmer uses a storage silo that is in the shape of the right circular cylinder above. If the volume of the silo is  $72\pi$  cubic yards, what is the diameter of the base of the cylinder, in yards?

$$V = \pi r^2 h$$

$$72\pi = \pi r^2 h$$

$$72 = r^2 h$$

$$9 = r^2$$

$$3 = r$$

$$3 \times 2 = 6$$

$$6 \text{ yards}$$

Set #4A Key

1. C

2. A

3. C

4. C

5. 6

Set #4B

Use the following information for questions 1 and 2.

$$a = 1,052 + 1.08t$$

The speed of a sound wave in air depends on the air temperature. The formula above shows the relationship between  $a$ , the speed of a sound wave, in feet per second, and  $t$ , the air temperature, in degrees Fahrenheit ( $^{\circ}\text{F}$ ).

1

Which of the following expresses the air temperature in terms of the speed of a sound wave?

A)  $t = \frac{a - 1,052}{1.08}$

B)  $t = \frac{a + 1,052}{1.08}$

C)  $t = \frac{1,052 - a}{1.08}$

D)  $t = \frac{1.08}{a + 1,052}$

$$a = 1,052 + 1.08t$$

$$\frac{a - 1052}{1.08} = \frac{1.08t}{1.08}$$

2

At which of the following air temperatures will the speed of a sound wave be closest to 1,000 feet per second?

A)  $-46^{\circ}\text{F}$

B)  $-48^{\circ}\text{F}$

C)  $-49^{\circ}\text{F}$

D)  $-50^{\circ}\text{F}$

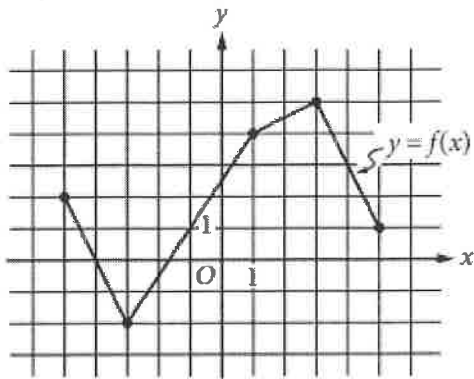
$$a = 1052 + 1.08t$$

$$1000 = 1052 + 1.08t$$

$$-52 = 1.08t$$

$$-48 = t$$

3.

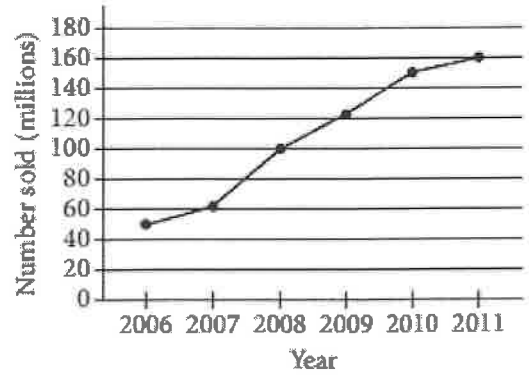


The complete graph of the function  $f$  is shown in the  $xy$ -plane above. For what value of  $x$  is the value of  $f(x)$  at its minimum?

- A) -5
- B) -3
- C) -2
- D) 3

4.

Number of Portable Media Players Sold Worldwide Each Year from 2006 to 2011



According to the line graph above, the number of portable media players sold in 2008 is what fraction of the number sold in 2011?

$$\frac{100}{160} = \frac{5}{8}$$

5. For a polynomial  $p(x)$ , the value of  $p(3)$  is  $-2$ . Which of the following must be true about  $p(x)$ ?

- A)  $x - 5$  is a factor of  $p(x)$ .
- B)  $x - 2$  is a factor of  $p(x)$ .
- C)  $x + 2$  is a factor of  $p(x)$ .
- D) The remainder when  $p(x)$  is divided by  $x - 3$  is  $-2$ .

Set #4B Key

1. A

2. B

3. B

4.  $\frac{5}{8}$  or .625

5. D

Set #4C

Calculator Section

1. For a polynomial  $f(x)$ , the value of  $f(2)$  is 0. Which of the following must be true about  $f(x)$ ?

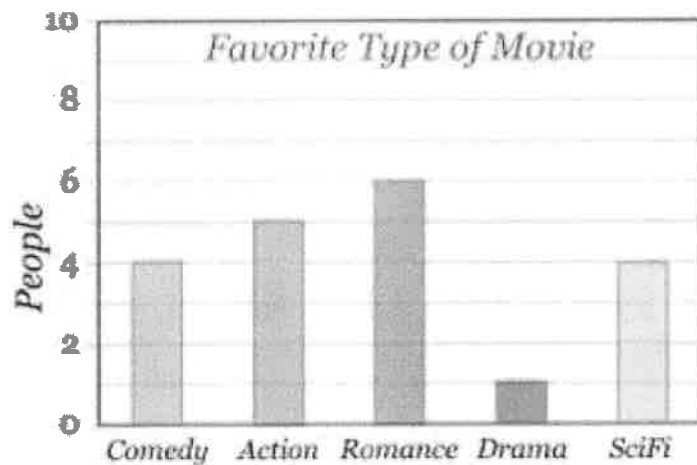
A) 2 is a factor of  $f(x)$

B)  $x + 2$  is a factor of  $f(x)$

C)  $x - 2$  is a factor of  $f(x)$

D) The remainder when  $f(x)$  is divided by  $x$  is 2

2. The results of a survey of a group's favorite movie genres can be found below.



The number of respondents who prefer comedy movies represents what fraction of the number of respondents who prefer romance movies?

A)  $1/2$

B) 4

C)  $3/2$

D)  $2/3$

$$\frac{4}{6} = \frac{2}{3}$$

3. The table below depicts the shoe sizes of 20 individuals.

12	5	9	12	8
8	7	11	10	7
7	8	7	9	12
9	10	6	8	10

If an individual with a size 20 shoe were added to the sample shown, which of the following is true of the new sample?

- A) The mean and median shoe size will not change at all.
- B) The range in shoe size will decrease.
- C) The median shoe size will remain about the same.
- D) There is no way to know how the mean or median would change.

4. If  $12x$  is 6 less than  $10x$ , what is the value of  $5x$ ?

A) 20

B) -15

C) 15

D) 3

$$12x = 10x - 6$$

$$2x = -6$$

$$x = -3$$

$$5(-3) = -15$$

5. A cylindrical tank holds  $500 \text{ cm}^3$  of water when filled completely. If the tank is 10 cm tall, what is the diameter of the tank, to the nearest centimeter?

$$V = \pi r^2 h$$

$$500 = \pi r^2 (10)$$

$$15.9 = r^2$$

$$4 = r$$

$$\therefore \text{diameter} = \textcircled{8}$$