

## DIRECTIONS

Read each of the questions below and then decide on the BEST answer.

**1**

Which of the following tools is used to measure the number of degrees in an angle?

- A. Caliper
- B. Compass
- C. Micrometer
- D. Protractor

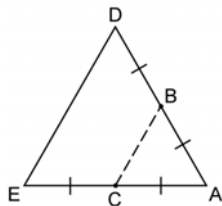
**2**

Simplify:

$$-13x + (-7x) + 5x$$

- A.  $-25x$     B.  $-15x$     C.  $15x$     D.  $25x$

**3**



If this triangle is folded along the dotted line, where will point A end up?

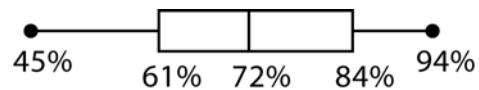
- A. In the interior of  $\triangle ADE$
- B. On the exterior of  $\triangle ADE$
- C. The midpoint of  $\overline{ED}$
- D. On line BC

**4**

Which number has the greatest value?

- A.  $3.1^5$
- B.  $4.2 \times 10^2$
- C. 3100
- D.  $200^2$

**5**



The box-and-whisker plot represents the average grades on the semester final in Mrs. Chambers' math class. If the trend remains the same this year, what will the median score of the class be?

- A. 69.5%
- B. 71.2%
- C. 72%
- D. 72.5%

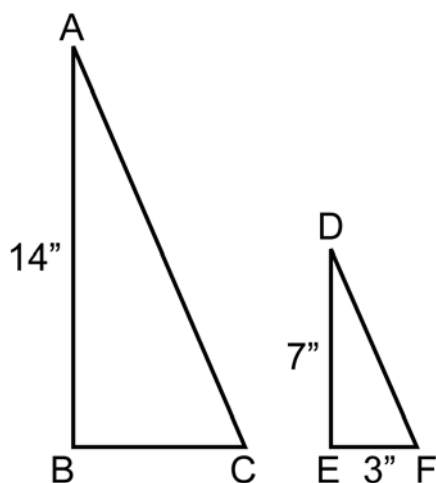
**6**

There are 6 snakes in a certain valley. The population of snakes doubles every year. In how many years will there be 96 snakes?

- A. 2    B. 3    C. 4    D. 8

# Mathematics ▼

7



$\triangle ABC \sim \triangle DEF$

What is the measure of  $\overline{BC}$ ?

- A. 4"
- B. 5"
- C. 6"
- D. 7"

8

Josh and Andrea each have \$10.50. Josh spends all his money and buys 2 hamburgers and 3 sodas. Andrea spends \$7.50 and buys 2 hamburgers and one soda.

What is the cost of one hamburger?

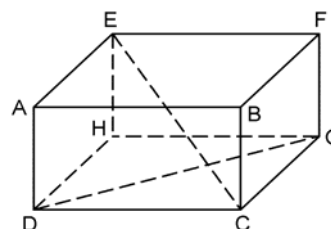
- A. \$1.50
- B. \$2.50
- C. \$3.00
- D. \$8.75

9

Determine the midpoint of a segment whose endpoints are (-3, 4) and (3, 10).

- A. (0, 7)
- B. (3, 7)
- C. (0, -3)
- D. (-3, 3)

10



Given the right rectangular prism, which of the following statements must be true?

- A.  $\overline{EC} \cong \overline{DG}$
- B.  $\overline{DH} \cong \overline{GF}$
- C.  $\angle CDG \cong \angle CEH$
- D.  $\overline{HG} \cong \overline{AB}$

11

Solve the system of equations:

$$\begin{aligned} a + b &= -7 \\ 4a + 2b &= 22 \end{aligned}$$

- A.  $a = -7.5$   
 $b = -14.5$
- B.  $a = 18$   
 $b = -25$
- C.  $a = 2$   
 $b = -9$
- D.  $a = 22$   
 $b = -7$

**12**

In a survey of 500 consumers, each was asked to select their favorite cheese-slicers from among four distinct models.

The results were as follows: “whatsits” – 100, “thingamajigs” – 125, “gizmos” – 150, and “widgets” – 125.

If 600,000 cheese-slicers are sold, then how many of them should be “gizmos?”

- A. 120,000
- B. 150,000
- C. 180,000
- D. 420,000

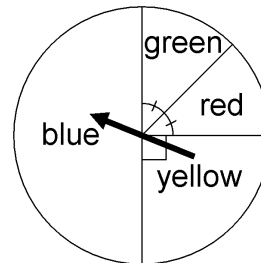
**13**

Triangle ABC is rotated  $45^\circ$  about point C in a clockwise direction. What is the relationship between triangle ABC and its image A'B'C'?

- A. They are congruent.
- B. Each side of A'B'C' is 45 times as large as the sides of ABC.
- C. Each angle of A'B'C' is  $45^\circ$  larger than the angles of ABC.
- D. They have no relationship to each other.

**14**

The blue part is  $\frac{1}{2}$  of the spinner. The yellow part is  $\frac{1}{4}$  of the spinner. The red and green parts are the same size. James spins the spinner 80 times. About how many times should it land in the green part?



- A. 10
- B. 20
- C. 40
- D. 60

**15**

A tank contains 5 gallons of water. It is leaking at a rate of 4 gallons per hour. The situation is modeled by  $G = -4t + 5$  where “t” represents time in hours. How long until the tank contains only 3 gallons of water?

- A.  $t = -2$  hrs.
- B.  $t = -\frac{1}{2}$  hrs.
- C.  $t = \frac{1}{2}$  hr.
- D.  $t = 2$  hrs.

**16**

Line CD is a line of symmetry for  $\triangle ABC$ . What can you conclude?

- A.  $\overline{AD} \cong \overline{DB}$
- B.  $\angle A \cong \angle B$
- C.  $\overline{AC} \cong \overline{BC}$
- D. All of the above

# Mathematics ▼

17

Which number has the greatest value?

- A.  $\left(\frac{1}{2}\right)^4$
- B.  $\sqrt{5}$
- C.  $\frac{7}{3}$
- D. 2.324

18

Find the solution to the following system of two linear equations:

$$\begin{aligned} Y &= 9x - 3 \\ 4x + 2y &= 5 \end{aligned}$$

- A.  $\left(\frac{1}{2}, \frac{3}{11}\right)$
- B.  $\left(\frac{1}{2}, \frac{3}{2}\right)$
- C.  $\left(\frac{8}{13}, 2\frac{7}{13}\right)$
- D.  $\left(\frac{11}{13}, 4\frac{7}{13}\right)$

19

A standard deck of cards has 26 red cards and 26 black cards. 2 cards are drawn out of the deck. What is the probability the second card is red, given the first card was black. (The first card was not replaced in the deck before the second card was drawn.)

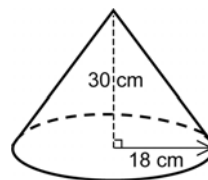
- A.  $\frac{50}{51}$
- B.  $\frac{26}{52}$
- C.  $\frac{26}{51}$
- D.  $\frac{25}{52}$

20

The coordinates of point A are (-5, 3). If A is reflected over the y-axis, then translated 3 units right and 4 units down, the new coordinates of A are:

- A. (5, 3)
- B. (8, -1)
- C. (-2, -1)
- D. (-2, -7)

21



The volume of the cone is     ?  $\text{cm}^3$ .

- A.  $2592\pi$
- B.  $3240\pi$
- C.  $7776\pi$
- D.  $9720\pi$

**22**

Which formula best describes the table of values shown?

x	y
-3	81
-2	36
-1	9
0	0
1	9
2	36
3	81

- A.  $y = -27x$                       C.  $y = (3x)^2$   
 B.  $y = 27x$                         D.  $y = 3x^2$

**23**

The equations of two lines are:

$$3x - 2y = 11$$

$$2x + y = 5$$

If the lines are graphed, at what point do they intersect?

- A. (-1, 3)                              C. (3, -10)  
 B. (3, -1)                              D.  $(4, \frac{1}{2})$

**24**

A man spent  $\frac{1}{2}$  of his life in Mexico,  $\frac{1}{3}$  of his life in America,  $\frac{1}{7}$  of his life in Brazil, and his remaining 2 years in Argentina. How old was he when he moved to Argentina?

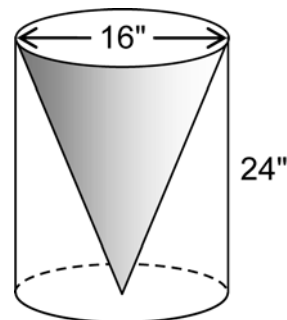
- A. 80 yrs. old  
 B. 82 yrs. old  
 C. 84 yrs. old  
 D. 86 yrs. old

**25**

Joe has two fair dice (faces numbered 1-6) and a fair coin. He rolls the dice and tosses the coin. What is the probability Joe rolls one three (3), one four (4), and tosses a head?

- A.  $\frac{1}{216}$       B.  $\frac{1}{36}$       C.  $\frac{1}{24}$       D.  $\frac{5}{6}$

**26**



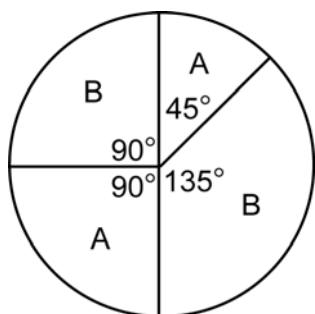
What is the volume left in the cylinder after the shaded cone region is removed?

- A.  $1,024\pi \text{ in.}^3$                       C.  $2,048\pi \text{ in.}^3$   
 B.  $1,536\pi \text{ in.}^3$                       D.  $4,096\pi \text{ in.}^3$

# Mathematics ▼

27

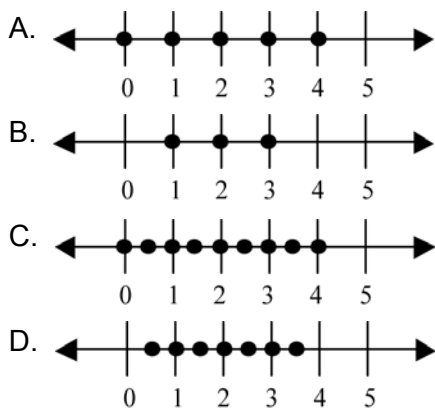
If you spin the spinner two times, what is the probability it will land on A both times?



- A.  $\frac{1}{4}$     B.  $\frac{3}{8}$     C.  $\frac{6}{8}$     D.  $\frac{9}{64}$

28

Which set of points on the graph represents a set of integers strictly between 0 and 4?



29

Which expression gives the greatest value if  $a = 6$  and  $b = -10$ ?

- A.  $a - \frac{b}{a}$   
 B.  $a \div (a - b)$   
 C.  $a^2 \div (a - b)$   
 D.  $a \div a - b^2$

30

The library on campus is shaped like a regular polygon. Gayle finds the measurement of one of the interior angles of the library to be  $165.6^\circ$ . Using the measurement of the angle, Gayle determines the library has \_\_\_ sides.

- A. 13  
 B. 15  
 C. 25  
 D. 38



## High School MATHEMATICS SAMPLE TEST KEY 2008 – 2010

Test Item	Correct Answer	Score Reporting Category	SRC Coding
1	D	Measurement	2.1.C1
2	B	Algebraic Relationships	4.2.C5
3	C	Geometry	5.1.C3
4	D	Calculations and Estimations	1.1.C3
5	C	Statistics and Probability	3.4.C2
6	C	Algebraic Relationships	4.2.C2
7	C	Geometry	5.1.C7
8	C	Algebraic Relationships	4.2.C4
9	A	Geometry	5.3.C2
10	D	Geometry	5.1.C7
11	B	Algebraic Relationships	4.2.C4
12	C	Statistics and Probability	3.4.C2
13	A	Geometry	5.4.C7
14	A	Statistics and Probability	3.2.C2
15	C	Algebraic Relationships	4.2.C2
16	D	Geometry	5.4.C7
17	C	Calculations and Estimations	1.1.C1
18	B	Algebraic Relationships	4.2.C4
19	C	Statistics and Probability	3.2.C3
20	B	Geometry	5.4.C4
21	B	Measurement	2.2.C11
22	C	Algebraic Relationships	4.1.C3
23	B	Algebraic Relationships	4.2.C4
24	B	Algebraic Relationships	4.3.C1
25	B	Statistics and Probability	3.2.C1
26	A	Measurement	2.2.C15
27	D	Statistics and Probability	3.2.C1
28	B	Calculations and Estimations	1.1.C9
29	A	Algebraic Relationships	4.2.C6
30	C	Geometry	5.1.C5

### CONVERTING TO A RIT SCORE

Number Correct	RIT score	Number Correct	RIT score
1	194.3	16	233.7
2	201.9	17	235.4
3	206.6	18	237.1*
4	210.1	19	238.9
5	213.0	20	240.7
6	215.5	21	242.6
7	217.8	22	244.6
8	219.8	23	246.8**
9	221.8	24	249.1
10	223.6	25	251.7
11	225.4	26	254.8
12	227.1	27	258.5
13	228.8	28	263.3
14	230.4	29	271.1
15	232.1	30	278.4

\* Likely to meet HS Standards

\*\* Likely to exceed HS Standards

Note: The sample test is for practice only; scores may not be substituted for the Oregon Statewide Assessment.