

# **Arizona's Instrument to Measure Standards**

## **High School Mathematics**

**Administered Spring, 2004**

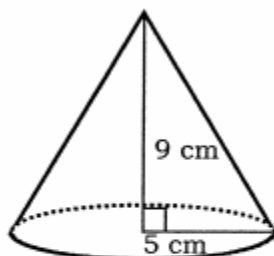
**Released items**

**11.15.2004**

**Mathematics**

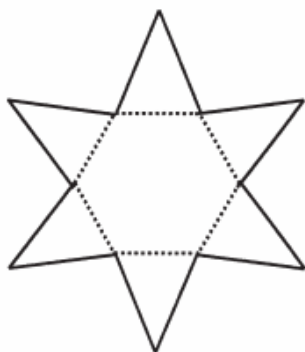
**DIRECTIONS:** Read each question and choose the best answer.

- 1 What is the *volume* of the given cone?

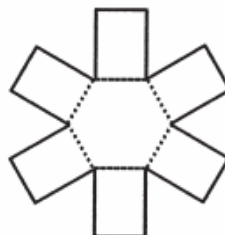


- A  $225\pi \text{ cm}^3$
  - B  $75\pi \text{ cm}^3$
  - C  $25\pi \text{ cm}^3$
  - D  $15\pi \text{ cm}^3$
- 2 If a hexagonal pyramid were laid flat on a plane, which of the following would represent its net?

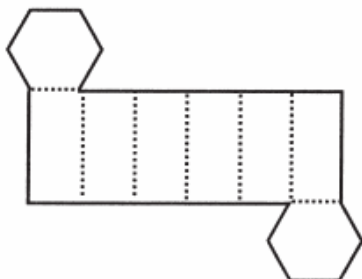
A



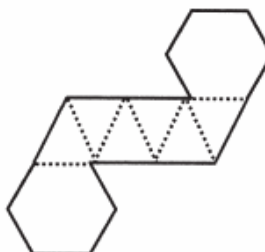
C



B



D



- 3 Joan is planning her summer vacation. She can choose to go to one of 7 different countries, using 4 different airlines, and three different departure dates. How many different vacation combinations consisting of one country, one airline and one departure date are possible?

A 14  
B 28  
C 31  
D 84

- 4 A model of a house is built to a scale of 1:10. The original house has a height of 15 ft. What is the height of the model?

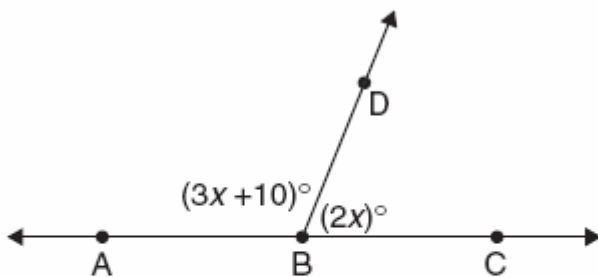
A  $1\frac{1}{2}$  feet  
B  $\frac{2}{3}$  feet  
C 5 feet  
D 10 feet

- 5 Which of the linear equations below is derived from the following table of values?

x	-3	-1	1	3
y	1	3	5	7

A  $y = x + 4$   
B  $y = 2x + 7$   
C  $y = -x + 4$   
D  $y = 3x + 2$

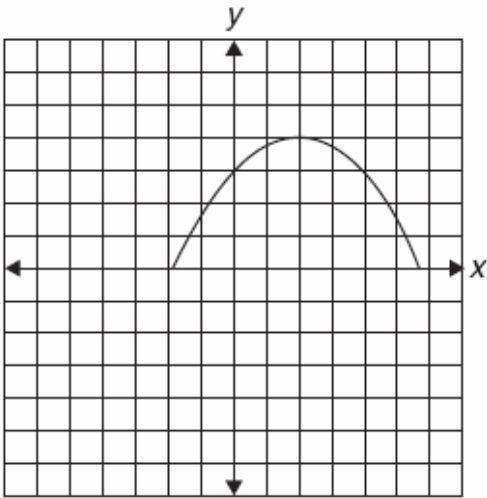
- 6 In the figure below,  $\overrightarrow{BD}$  intersects  $\overrightarrow{AC}$  at point  $B$ .



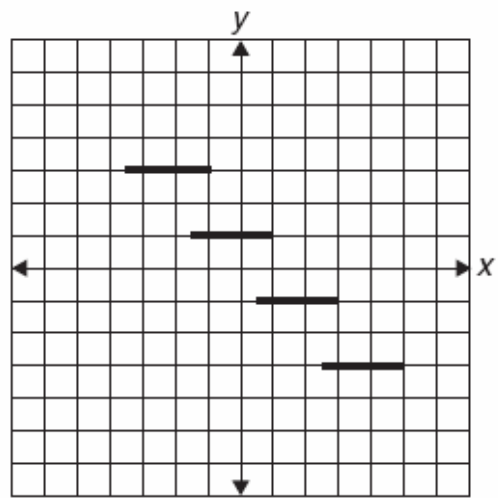
What is the measure of  $\angle ABD$ ?

- A  $68^\circ$
- B  $112^\circ$
- C  $124^\circ$
- D  $170^\circ$

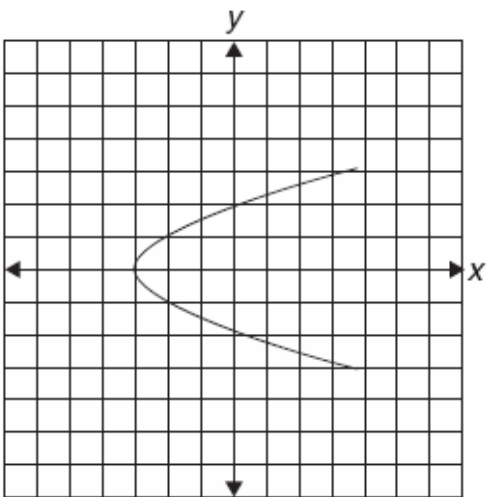
7 In which of the following graphs is  $y$  a function of  $x$ ?



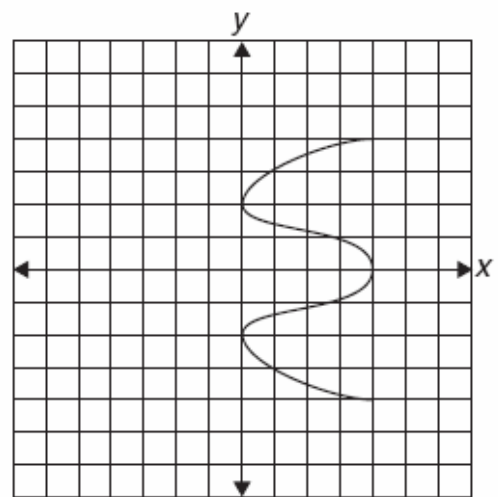
A



C



B



D

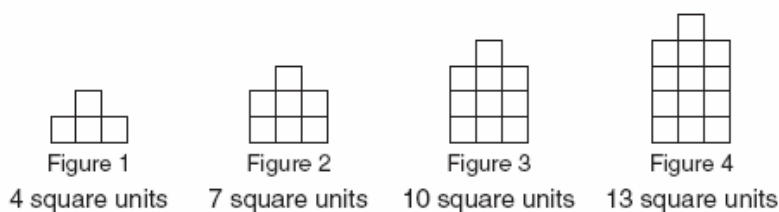
- 8 Lincoln High School is considering adding co-ed soccer to the sports program for the fall season. In order to get an unbiased sample of interest in soccer, the school should survey which group below?
- A all girls in dance class
  - B the varsity football team
  - C all students who were elected this year to the student council
  - D every third student entering second period classes
- 9 What is the distance between the points  $(4, -2)$  and  $(-5, 3)$ ?
- A  $D = \sqrt{106}$
  - B  $D = \sqrt{28}$
  - C  $D = \sqrt{26}$
  - D  $D = \sqrt{2}$
- 10 One night, the low temperature in Flagstaff was  $-5^{\circ}\text{F}$ . That same night in Phoenix the low temperature was  $40^{\circ}\text{F}$ . What is the absolute value of the difference between these two temperatures?
- A  $-45^{\circ}\text{F}$
  - B  $-35^{\circ}\text{F}$
  - C  $35^{\circ}\text{F}$
  - D  $45^{\circ}\text{F}$

11 What is the solution to the equation below?

$$6x + 4 = 2x - 12$$

- A  $x = -4$
- B  $x = 4$
- C  $x = 2$
- D  $x = -2$

12 Look at the figures below.



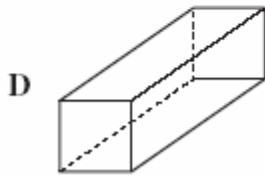
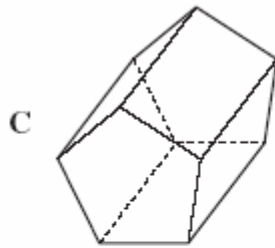
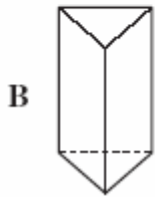
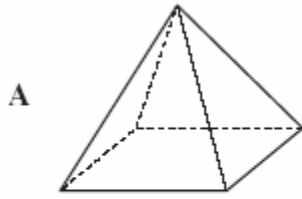
If the number of square units in the pattern of figures continues to increase arithmetically as shown, how many square units will be in the 9th figure?

- A 9
  - B  $3^9 + 1$
  - C  $9(3 + 1)$
  - D  $1 + (3 \cdot 9)$
- 13 What value of  $x$  would make the following proportion true?

$$\frac{6}{x - 4} = \frac{3}{4}$$

- A 12
- B  $\frac{28}{3}$
- C 4
- D  $\frac{1}{8}$

14 Which figure below has bases that are triangles and lateral faces that are rectangles?





15 Which of the following quadratic equations is solved correctly?

A  $x^2 - 2x - 35 = 0$   
 $(x - 7)(x + 5) = 0$   
 $x = 7, x = -5$

B  $x^2 + 7x + 6 = 0$   
 $(x + 1)(x + 6) = 0$   
 $x = 1, x = 6$

C  $x^2 - 9x - 18 = 0$   
 $(x - 6)(x - 3) = 0$   
 $x = -6, x = -3$

D  $x^2 - 9x + 20 = 0$   
 $(x + 4)(x + 5) = 0$   
 $x = -4, x = -5$

16 What is the y-value of the solution to the following system of linear equations?

$$y = x + 8$$
$$x + 2y = 1$$

- A -7  
B -5  
C 3  
D 13

**17** On June 1, Mary had a balance of \$50 in her bank account. During June she made the four transactions below.

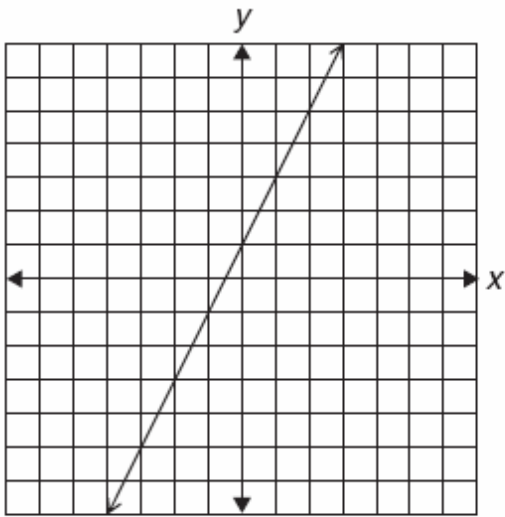
- deposited \$25
- withdrew \$30
- wrote a check for \$60
- paid a bank fee of \$25

If there were no other transactions, what was the balance in Mary's bank account on July 1?

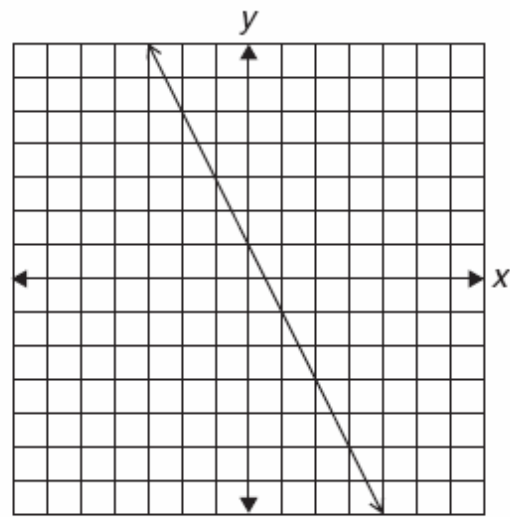
- A -\$90
- B -\$40
- C +\$10
- D +\$190

18 Which line graph appears to contain the points on the table below?

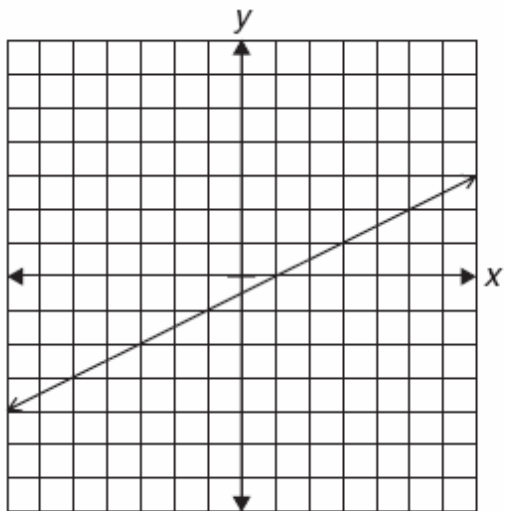
$x$	-1	0	1	2
$y$	-1	1	3	5



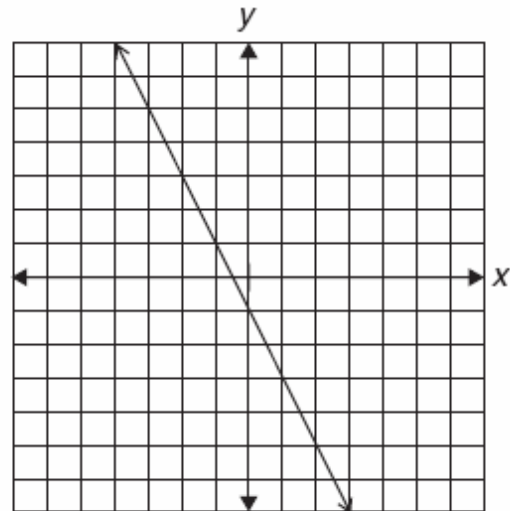
A



C



B



D

