

**Arizona's Instrument to
Measure Standards
(AIMS)**

Mathematics

Administered Spring, 2005

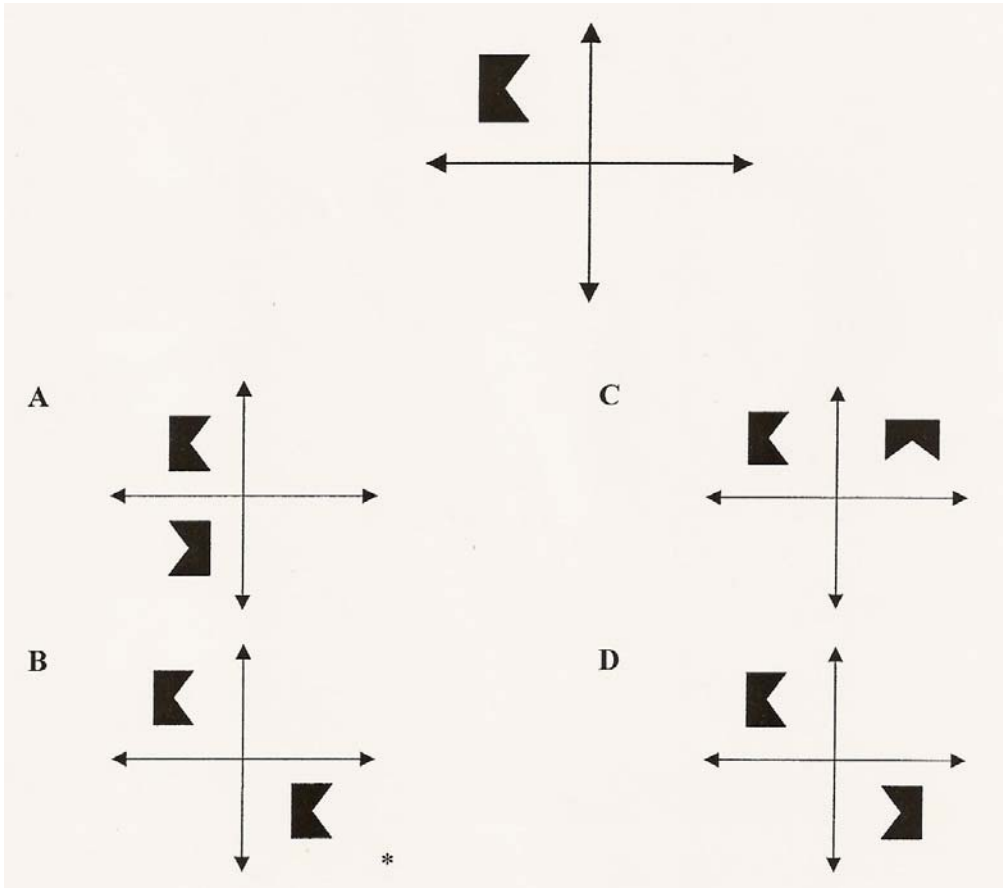
Released Items

November 15, 2005

Mathematics


DIRECTIONS: Read each question and choose the best answer.

1. Which of the following represents a translation of the figure?



2. Student council is planning lunchtime activities for Spirit Week. They want to survey students to determine which activities are the most popular. Which of the following is the best group for them to survey?

- A The Freshman, JV, and Varsity football teams.
- B The Dance Team and the Band.
- C The Speech Club and the Drama Club.
- D One English class at each grade level.

Go On 

3. Which of the following expressions is equivalent to $(6xy)^2$?

- A** $12x^2y^2$
- B** $6xy^2$
- C** $36x^2y^2$
- D** $6x^2y^2$

4. Which of the following transformations always preserves the dimensions of a figure?


- I.** translation
 - II.** rotation
 - III.** reflection
 - IV.** dilation
- A** **I, II, and III**
 - B** **I, II, and IV**
 - C** **I, III, and IV**
 - D** **II, III, and IV**

5. Which statement is true about the graphs of these equations?

$$y = 6x + 4$$

$$y = 5x - 2$$

- A** The lines intersect, but are not perpendicular.
- B** The lines are parallel.
- C** The lines are perpendicular.
- D** The lines coincide (same line).

Go On 

- 6. Evaluate the expression $2(x - 3) + 3y$ when $x = 5$ and $y = 3$. Mark the correct answer.**

A 13
B 15
C 16
D 25

- 7. Steps 1 and 2 describe an algorithm.**

Step 1: Isolate the variable.

Step 2: Take the square root of both sides of the equation. You now have your answer.

Which of these equations can be solved by the algorithm above?


- I.** $x^2 - 2x - 3 = 0$
II. $x + 5 = 0$
III. $x^2 - 9 = 0$
IV. $x^3 + 2x + 6 = 0$

A I
B II
C III
D IV

- 8. Which is the solution to the following inequality?**

$$2x - 7 \geq 9$$

A $x \geq 8$
B $x \geq 1$
C $x \leq 8$
D $x \geq -1$

Go On 

9. Which of these is equivalent to the equation below?

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

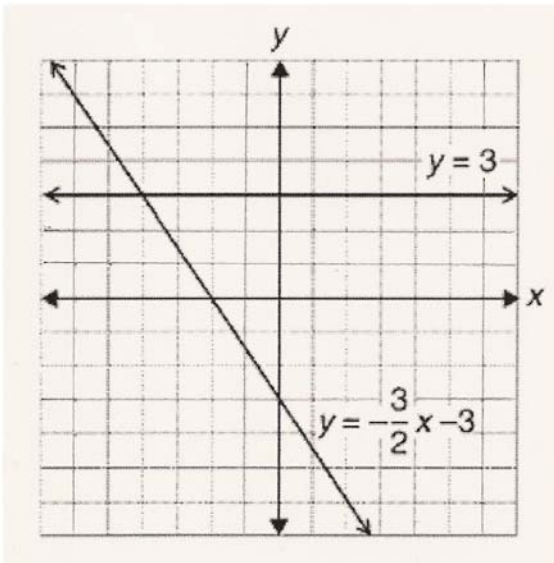
A $b = \frac{2A}{h}$

B $b = \frac{A}{2h}$

C $b = \frac{Ah}{2}$

D $b = 2A - h$

10. Which point best represents the solution to the system of linear equations shown in the graph below?



- A (-4, 3)
- B (3, -4)
- C (4, -3)
- D (-3, 4)

Go On

11. Which of the following addition properties justifies the statement below?

$$2 + 0 = 2$$

- A Commutative
- B Identity
- C Inverse
- D Closure

12. A car made a trip of 352 miles on 16.8 gallons of gasoline. Which is closest to the number of miles per gallon the car got on that trip?


- A 10 mpg
- B 20 mpg
- C 30 mpg
- D 40 mpg

13. The table represents how the air temperature combines with the humidity to form the heat index.

60	90	100	114	132	149
55	89	98	110	126	142
50	88	96	107	120	135
45	87	95	104	115	129
40	86	93	101	110	123
35	85	91	98	107	118
30	84	90	96	104	113
	85	90	95	100	105
	Air Temperature (°F)				

Which statement is correct?

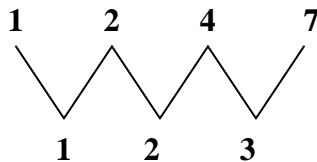
- A As the humidity and temperature decrease, the heat index increases.
- B As the humidity and temperature increase, the heat index decreases.
- C As the humidity increases and the temperature decreases, the heat index increases.
- D As the humidity and temperature increase, the heat index increases.

Go On 

14. Sally wrote the number pattern shown below.

1, 2, 4, 7, ...

She noticed another pattern when she found that the difference between consecutive numbers increased by 1 as shown below.




If the difference continues to increase by 1, what will be the next two terms of the original pattern?

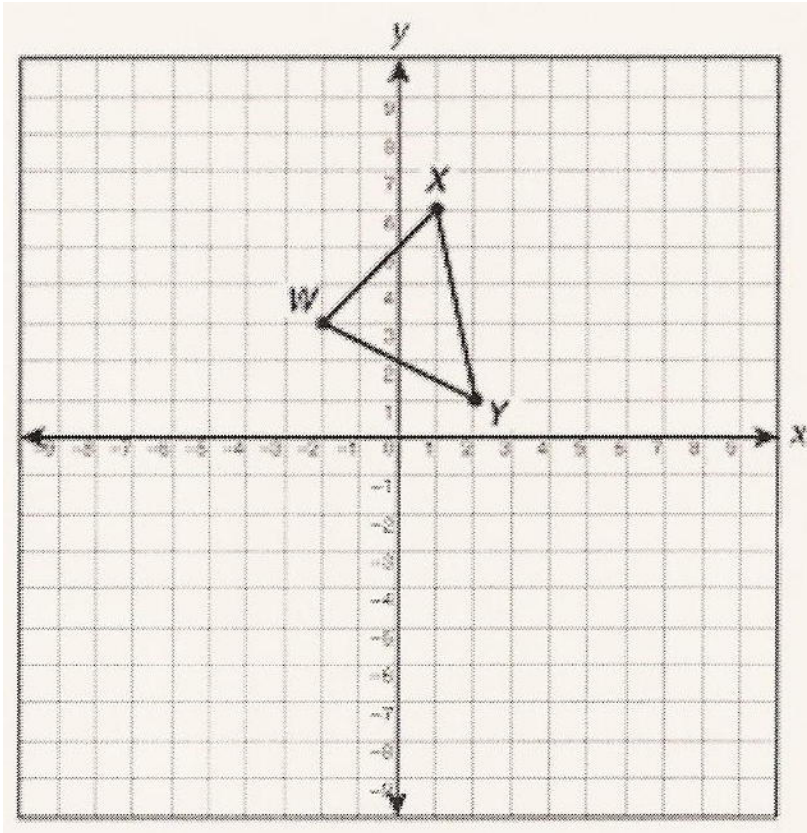
- A 10, 13
 - B 10, 14
 - C 11, 15
 - D 11, 16
15. Which linear equation best represents the data in the table shown below?

x	y
2	1
3	3
4	5


- A $y = \frac{1}{2}x$
- B $y = x - 1$
- C $y = 2x - 3$
- D $y = -2x + 5$

Go On 

16. What is the apparent image of X when triangle WXY is translated 2 units down and 5 units right?

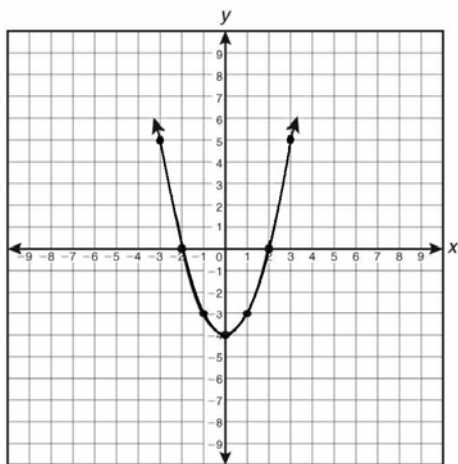


- A (1, 3)
- B (3, 1)
- C (4, 6)
- D (6, 4)

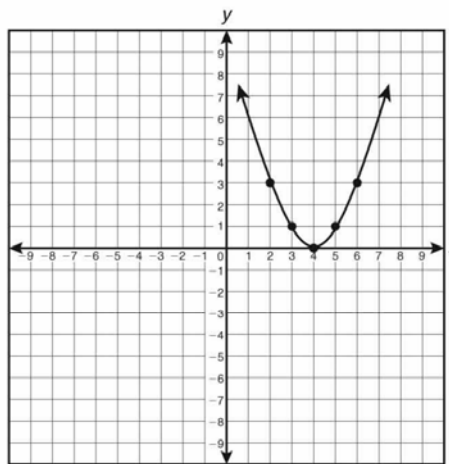
Go On 

17. Which of the following represents the graph of the equation below?

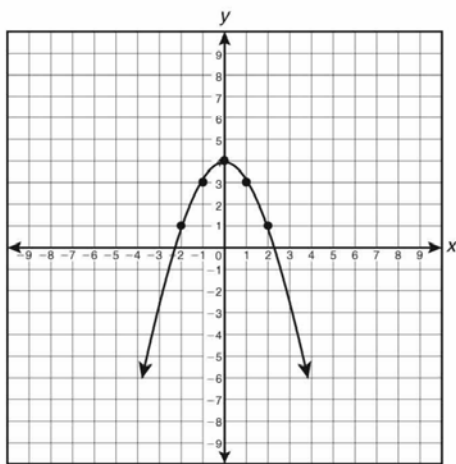
$$y = x^2 - 4$$



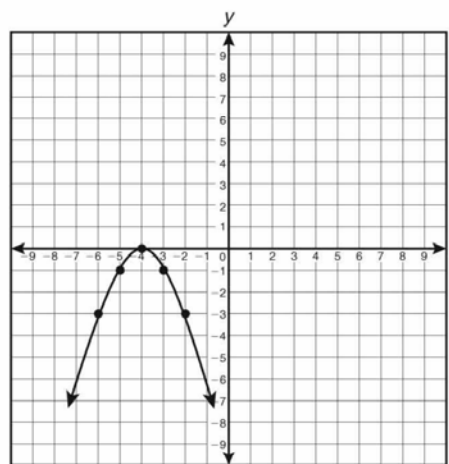
A



C



B



D

Go On 

- 18.** Which of the following could be a correct procedure for solving the inequality shown below?

$$4x + 6 \leq 6x + 15$$

A $4x + 6 \leq 6x + 15$
 $-2x + 6 \leq 15$
 $-2x \leq 9$
 $x \geq -\frac{9}{2}$

B $4x + 6 \leq 6x + 15$
 $-2x + 6 \leq 15$
 $-2x \leq 21$
 $x \leq -\frac{21}{2}$


C $4x + 6 \leq 6x + 15$
 $-2x + 6 \leq 15$
 $-2x \leq 9$
 $x \leq -\frac{9}{2}$

D $4x + 6 \leq 6x + 15$
 $-2x + 6 \leq 15$
 $-2x \leq 9$
 $x \geq -\frac{21}{2}$

- 19.** What is the value of the expression below?

$$5 - |4| + |8 - 10|$$

- A** -1
B 3
C 7
D 11

Go On 

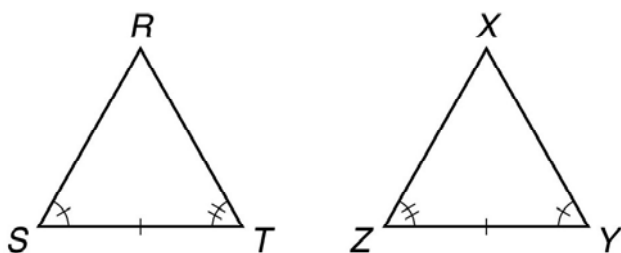
20. Which of the following could represent a census of a school?

- A sophomore class
- B P.E. classes
- C math club members
- D entire student body


21. Which of the following is always true?

- A A rectangle is a square.
- B A rhombus is a rectangle.
- C A parallelogram is a rhombus.
- D A rectangle is a parallelogram.

22. Which principle of congruence could be used to prove triangle RST is congruent to triangle XYZ?



- A Side-Side-Side (SSS)
- B Side-Angle-Side (SAS)
- C Angle-Side-Angle (ASA)
- D Side-Side-Angle (SSA)

Go On 

23. The statements below are out of order.

W: If blitz, then kerd.

X: If mot, then det.

Y: If kerd, then mot.

Z: If toc, then blitz.

Which of the following puts the nonsensical if-then statements in logical order?

A $W \rightarrow Z \rightarrow X \rightarrow Y$

B $Z \rightarrow W \rightarrow Y \rightarrow X$

C $W \rightarrow Y \rightarrow X \rightarrow Z$

D $Z \rightarrow X \rightarrow Y \rightarrow W$


24. Each event described below is performed randomly. Which is a dependent event?

A From a bag of 10 marbles (4 red, 6 blue), Sam pulls a blue marble, puts it back, and then pulls a red marble.

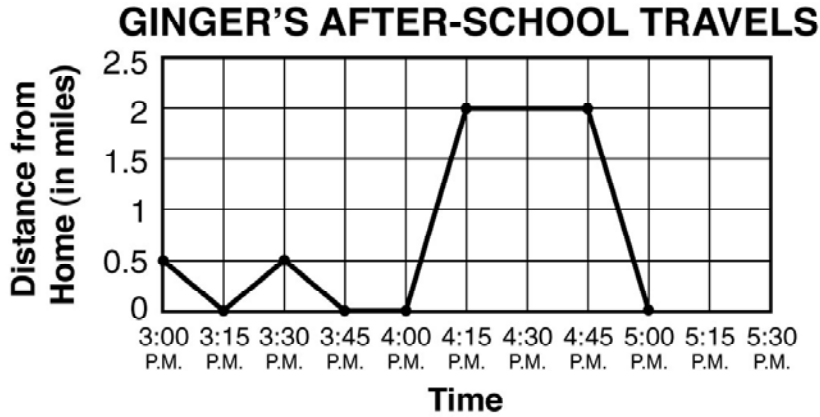
B On a spinner with 6 congruent sectors numbered 1 through 6, Greg first spins a 4 and then a 2 on the second spin.

C From a pack of 20 cards, Jose picks 1 card, sets it aside, and then picks a matching card on his second try.

D Monica tosses a fair coin two consecutive times, and it lands on heads both times.

Go On 

25. Ginger left school at 3:00 P.M. and walked home, but went back to school for a book. She then walked home, had a snack, and took a bus downtown. Later, she took a bus home, arriving at 5:00 P.M. Which of the following statements is true?



- A Ginger's maximum distance from home was 2 miles.
- B Ginger's minimum distance from home was 0.5 miles.
- C At 3:30 P.M., Ginger is at her furthest distance from home.
- D At 4:30 P.M., Ginger is back at her home.



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