

ALGEBRA I

MAB REGIONAL FEBRUARY 9, 1991

1. Which of the following is an example of the distributive property?
- A. $3x + 5x = 5x + 3x$
 - B. $(3a + 2b) + 5b = 3a + (2b + 5b)$
 - C. $3(x - 2) = 3x - 6$
 - D. $5x \cdot 1 = 5x$
 - E. none of these

2. Solve the system:
 $2x + y = 8$
 $y = 2x - 4$
 What is the product of x and y ?
- A. 0
 - B. 6
 - C. 8
 - D. 48
 - E. none of these

3. The graph of $3 < x + 2 < 7$ is:



- E. none of these

4. A line contains the points $(4, 3)$ and $(2, 7)$. What is the y -intercept of this line?

- A. $(0, -5)$
- B. $(0, 5)$
- C. $(0, 10)$
- D. $(0, 11)$
- E. none of these

6. Three notebooks and two packs of paper cost \$8. Three packs of paper and one notebook cost \$5. What is the total cost of 1 pack of paper and 1 notebook?

- A. \$1
- B. \$2
- C. \$3
- D. \$4
- E. none of these

7. An equation of a line is $2x - 3y = -5$. Which of the following is not a point on the line?

- A. $(1, 7/3)$
- B. $(-5/2, 0)$
- C. $(0, 5/3)$
- D. $(-4, -1)$
- E. none of these

8. Simplify:
 $(3x^2 + 4x - 17) - (2x^2 - 5x - 7)$

- A. $x^2 - x - 14$
- B. $x^2 + 9x - 10$
- C. $5x^2 - x - 14$
- D. $5x^2 - 9x - 10$
- E. none of these

9. Evaluate for $x = -3, y = 2$.

$$\frac{(2x^2y^3)^3}{(2xy)^2(xy^5)}$$

- A. -216
- B. -36
- C. 144
- D. 216
- E. none of these

10. Find the sum of the roots of $x^2 - 2x - 8 = 0$.

- A. -6
- B. -2
- C. 2
- D. 6
- E. none of these

11. Simplify: $\{ [6 + 4(2 + 3)] + 6 \div 2 \} - 1$

- A. 27
- B. 28
- C. 32
- D. 52
- E. none of these

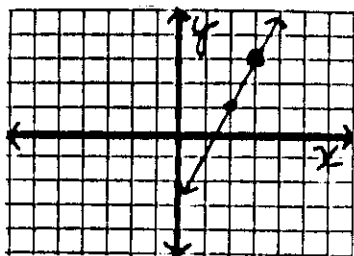
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11. The slope of the line shown is :

- A. -2
- B. $-1/2$
- C. $1/2$
- D. 2
- E. none of these



12. If $g(y) = 4 + 2y - 3y^2$, find $g(-3)$.

- A. -29
- B. -17
- C. 25
- D. 37
- E. none of these

13. Find the sum of all coefficients when $8a^2 - 14ab - 15b^2$ is factored completely.

- A. 4
- B. 5
- C. 8
- D. 14
- E. none of these

14. Find the sum of $\frac{1}{a} + \frac{1}{b}$.

- A. $\frac{2}{a+b}$
- B. $\frac{2}{ab}$
- C. $\frac{a+b}{ab}$
- D. $\frac{a-b}{ab}$
- E. none of these

15. Which of the following is an irrational number ?

- A. 1.26
- B. 1.2626...
- C. 1.262662666...
- D. 1.26666...
- E. none of these

16. Evaluate $(x+y)(x-y)$ if $x = 3$ and $y = -2$.

- A. -5
- B. 1
- C. 5
- D. 25
- E. none of these

17. The quadrant containing an ordered number pair in which the abscissa is -3 and the ordinate is 2 is

- A. I
- B. II
- C. III
- D. IV
- E. none of these

18. Simplify: $\frac{-6rs}{5} \cdot \frac{10r}{3r^2s}$

- A. -4r
- B. 2rs
- C. 4
- D. $-3r^2s^2$
- E. none of these

19. Express this fraction in simplest form using no negative exponents.

$$\frac{x^{-1}y^2z^{-4}}{x^2y^4z^{-6}}$$

- A. xy^2z^2
- B. $x^3y^6z^{10}$
- C. $\frac{z^2}{xy^2}$
- D. $\frac{z^2}{x^3y^2}$
- E. none of these

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20. There are three consecutive odd integers such that twice the first decreased by the third is 21. Find the sum of the three integers.
A. 57
B. 72
C. 81
D. 109
E. none of these
21. To solve the equation $3x - 7 = 2$, you would add what number to each side?
A. -7
B. $1/3$
C. 2
D. 7
E. none of these
22. If $3x - 4 = 11$, then find the value of $2x + 3 \div 2$.
A. 6.5
B. 11.5
C. 26
D. 84
E. none of these
23. What is the remainder when $v^2 + 3v + 4$ is divided by $v + 1$?
A. -2
B. 0
C. 2
D. 6
E. none of these
24. A man had \$2.05 in coins in his pocket. Every coin was either a dime or a nickel. He has 5 more nickels than dimes. How many coins are in his pocket?
A. 24
B. 29
C. 34
D. 39
E. none of these
25. The difference between the length and the width of a rectangle is 8. If the perimeter is 34, find the area.
A. 12
B. 34
C. $56 \frac{1}{4}$
D. 609
E. none of these
26. For the point P (-2,5), -2 is called the
A. abscissa
B. ordinate
C. slope
D. y-intercept
E. none of these
27. Solve for x:
$$\frac{x}{6} + \frac{2x}{3} = -\frac{5}{2}$$

A. -1
B. $-5/3$
C. $-3/2$
D. -3
E. none of these
28. $(x - 4)^2 =$
A. $x^2 - 16$
B. $x^2 + 16$
C. $x^2 + 8x + 16$
D. $x^2 - 8x + 16$
E. none of these
29. Solve the following equation for a.
$$\frac{1}{2}a + 2b = 2c$$

A. c-b
B. $2c - 2b$
C. $4c - 4b$
D. $4c + 4b$
E. none of these
30. If $A \odot B = A^2 + B + 7$, find B if $3 \odot B = 14$.
A. -2
B. 0
C. 6
D. 14