

# ACCUPLACER<sup>®</sup> MATH PLACEMENT TEST PRACTICE

## Problem #1.

1. All of the following are equivalent, except:

- (1) \_\_\_\_\_  $x^2 < 4$
- (2) \_\_\_\_\_  $-2 < x < 2$
- (3) \_\_\_\_\_  $x < \pm 2$
- (4) \_\_\_\_\_  $x^2 - 4 < 0$

2. Given the inequality  $|x - 4| < 1$ , solve for  $x$ .

- (1) \_\_\_\_\_  $3 < x < 5$
- (2) \_\_\_\_\_  $2 < x < 5$
- (3) \_\_\_\_\_  $3 < x < 6$
- (4) \_\_\_\_\_  $x = 4$

3. Which one of the following is equivalent to  $\sqrt[3]{x^6y^9z^3}$

- (1) \_\_\_\_\_  $x^2y^3z$
- (2) \_\_\_\_\_  $x^3y^4z^2$
- (3) \_\_\_\_\_  $x^2y^2$
- (4) \_\_\_\_\_  $x^3y^6z^2$

4. How many solutions exist for the following system of linear equations  $\begin{cases} 2x - 4y = 3 \\ x - 2y = 1 \end{cases}$

- (1) \_\_\_\_\_ One
- (2) \_\_\_\_\_ None
- (3) \_\_\_\_\_ Infinite many
- (4) \_\_\_\_\_ Three

5. What is the solution of the system of linear equations  $\begin{cases} x + y = 2 \\ 2x - y = 4 \end{cases}$

- (1) \_\_\_\_\_  $(2, 0)$
- (2) \_\_\_\_\_  $(0, 2)$
- (3) \_\_\_\_\_  $(-1, 2)$
- (4) \_\_\_\_\_  $(4, -2)$

6. What is the  $x$ -intercept of  $y = x^2 - 2x - 3$ ?
- (1) \_\_\_\_\_  $(-3, 0)$
  - (2) \_\_\_\_\_  $(-1, 0)$
  - (3) \_\_\_\_\_  $(0, -3)$
  - (4) \_\_\_\_\_  $(0, -1)$
7. If  $x^3 > 27$ , which of the following must be true of  $x$ ?
- (1) \_\_\_\_\_  $x < 3$
  - (2) \_\_\_\_\_  $-3 < x < 3$
  - (3) \_\_\_\_\_  $x > 3$
  - (4) \_\_\_\_\_  $x > -3$
8. Which one of the following points is not on the graph of  $2y = 3x - 1$ ?
- (1) \_\_\_\_\_  $(0, -1/2)$
  - (2) \_\_\_\_\_  $(1/3, 0)$
  - (3) \_\_\_\_\_  $(-1, -2)$
  - (4) \_\_\_\_\_  $(0, 0)$
9. How many integer solutions exist for  $x + y = 1/2$  on the first quadrant?
- (1) \_\_\_\_\_ None.
  - (2) \_\_\_\_\_ One.
  - (3) \_\_\_\_\_ Infinite many.
  - (4) \_\_\_\_\_ Three.
10. If  $x + \frac{1}{a} = b$ , then  $x =$
- (1) \_\_\_\_\_  $b - \frac{1}{a}$
  - (2) \_\_\_\_\_  $b + \frac{1}{a}$
  - (3) \_\_\_\_\_  $\frac{b-a}{a}$
  - (4) \_\_\_\_\_  $\frac{a-1}{b}$
11. One factor of  $3x^2 - 12y^2$  is
- (1) \_\_\_\_\_  $(x + 2y)$
  - (2) \_\_\_\_\_  $(2x + y)$
  - (3) \_\_\_\_\_  $(3x - 2y)$
  - (4) \_\_\_\_\_  $(2x - y)$
12. If  $-1 < x < 0$ , then of the following, which is least?
- (1) \_\_\_\_\_  $-x$
  - (2) \_\_\_\_\_  $(-x)^2$
  - (3) \_\_\_\_\_  $x^2$
  - (4) \_\_\_\_\_  $x^3$
13. If  $a - \frac{1}{x} = b$ , then  $x =$

- (1) \_\_\_\_\_  $\frac{1}{a+b}$   
 (2) \_\_\_\_\_  $\frac{1}{a} + \frac{1}{b}$   
 (3) \_\_\_\_\_  $\frac{1}{a} - \frac{1}{b}$   
 (4) \_\_\_\_\_  $\frac{1}{a-b}$

14. If  $x \in \mathbb{R}$  and  $0 < x < 1$ , then of the following, which is greatest?

- (1) \_\_\_\_\_  $\frac{1}{x}$   
 (2) \_\_\_\_\_  $-x$   
 (3) \_\_\_\_\_  $\frac{1}{x^2}$   
 (4) \_\_\_\_\_  $x^2$

15. If  $\frac{1}{x} = \frac{1}{2} - \frac{1}{3}$ , then  $x =$

- (1) \_\_\_\_\_  $\frac{1}{6}$   
 (2) \_\_\_\_\_  $6$   
 (3) \_\_\_\_\_  $\frac{2}{3}$   
 (4) \_\_\_\_\_  $\frac{3}{5}$   
 (5) \_\_\_\_\_  $\frac{5}{6}$

16. Which of the following is equivalent to  $\frac{a}{b} \div \left(\frac{b}{a}\right)$

- (1) \_\_\_\_\_  $1$   
 (2) \_\_\_\_\_  $\frac{a^2}{b^2}$   
 (3) \_\_\_\_\_  $\frac{b^2}{a^2}$   
 (4) \_\_\_\_\_ none of above

17. Which of the following is equivalent to  $\frac{12x^2y^{-1}}{18x^3y^2}$

- (1) \_\_\_\_\_  $\frac{2}{3xy^3}$   
 (2) \_\_\_\_\_  $\frac{2x}{3y^3}$   
 (3) \_\_\_\_\_  $\frac{3y^3}{2x}$   
 (4) \_\_\_\_\_  $\frac{2y^3}{3x^5}$

18. Which of the following is equivalent to  $\frac{a}{b} + \left(\frac{b}{a}\right)$

- (1) \_\_\_\_\_  $1$   
 (2) \_\_\_\_\_  $\frac{a^2+b^2}{a+b}$   
 (3) \_\_\_\_\_  $\frac{a^2-b^2}{a+b}$   
 (4) \_\_\_\_\_ none of above

19. In a freshmen course, there are 10 more Math majors than Physics majors. In the first exam, 10 percent of Physics majors and 20 percent of Math majors received F. If the total number of Physics and Math majors who received F is 17, how many Math majors were in the freshmen course?

- (1) \_\_\_\_\_ 50

- (2) \_\_\_\_\_ 60  
 (3) \_\_\_\_\_ 65  
 (4) \_\_\_\_\_ none of above

20.  $x + 1$  is a factor of which the following?

**I.**  $x^2 - 1$

**II.**  $x^2 + 1$

**III.**  $2x^2 + x - 1$

- (1) \_\_\_\_\_ I only  
 (2) \_\_\_\_\_ II only  
 (3) \_\_\_\_\_ I and III only  
 (4) \_\_\_\_\_ I,II,III

21.  $(7x^2 - 4x - 1) - (3x^2 - 3x + 1) =$

- (1) \_\_\_\_\_  $4x^2 - x - 2$   
 (2) \_\_\_\_\_  $4x^2 - x$   
 (3) \_\_\_\_\_  $10x^2 - x - 2$   
 (4) \_\_\_\_\_  $10x^2 - 7x + 1$

22.  $(2x - 1)^3 =$

- (1) \_\_\_\_\_  $8x^3 - 1$   
 (2) \_\_\_\_\_  $8x^3 - 12x^2 + 6x - 1$   
 (3) \_\_\_\_\_  $8x^3 + 12x^2 - 6x + 1$   
 (4) \_\_\_\_\_  $8x^3 + 1$

23.  $\frac{x^2+2x}{x^2} =$

- (1) \_\_\_\_\_  $1 + 2x$   
 (2) \_\_\_\_\_  $1 + \frac{2}{x}$   
 (3) \_\_\_\_\_  $1 + \frac{x}{2}$   
 (4) \_\_\_\_\_  $\frac{1}{x} + 2$

24. If  $(x + 1)(x - 1)(x - 2) = ax^3 + bx^2 + cx + d$ , what is the value of  $d$ ?

- (1) \_\_\_\_\_ 2  
 (2) \_\_\_\_\_ -2  
 (3) \_\_\_\_\_ 1  
 (4) \_\_\_\_\_ 0

25. If  $(2x - 3)(x + 2) = ax^2 + bx + c$ , what is the value of  $a$ ?

- (1) \_\_\_\_\_ 4  
 (2) \_\_\_\_\_ 2  
 (3) \_\_\_\_\_ -2

(4) \_\_\_\_\_ 3

26. John can run 5 miles in  $x$  minutes. If he can maintain the same average rate, how many minutes will he run if the destination is 18 miles away?

(1) \_\_\_\_\_  $1 + 2x$

(2) \_\_\_\_\_  $\frac{10x}{5}$

(3) \_\_\_\_\_  $3x + \frac{3}{5}$

(4) \_\_\_\_\_  $3x + \frac{3x}{5}$

27. Linda deposited a total of \$20,000 into two different bank accounts yielding simple interest of 4% and 5% respectively. She received a total of \$920 in interest. How much of the \$20,000 was deposited in the bank account that earned 5%?

(1) \_\_\_\_\_ 8,000

(2) \_\_\_\_\_ 12,000

(3) \_\_\_\_\_ 6,000

(4) \_\_\_\_\_ 14,000

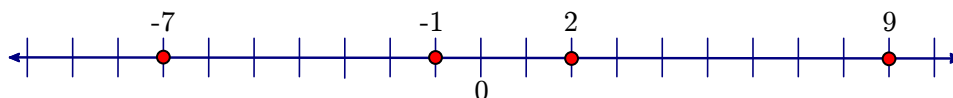
28. Which of the following points has the least absolute value?

(1) \_\_\_\_\_ -7

(2) \_\_\_\_\_ -1

(3) \_\_\_\_\_ 2

(4) \_\_\_\_\_ 9



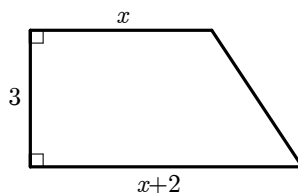
29. Consider the trapezoidal patio shown below. The patio has two right angles, and the edge between those angles is 3 units long. If the top edge is  $x$  units long and the bottom edge is  $x + 2$  units long. What is the area of the patio?

(1) \_\_\_\_\_  $3x$

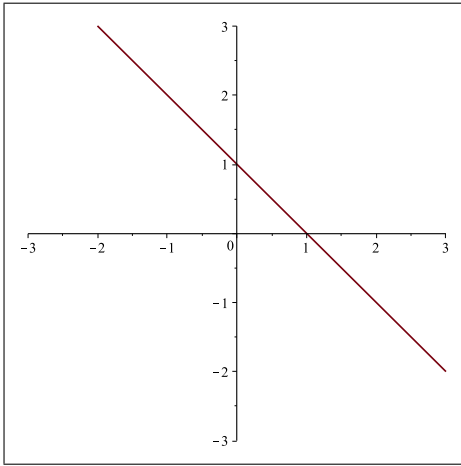
(2) \_\_\_\_\_  $3x + 3$

(3) \_\_\_\_\_  $x^2 + 3$

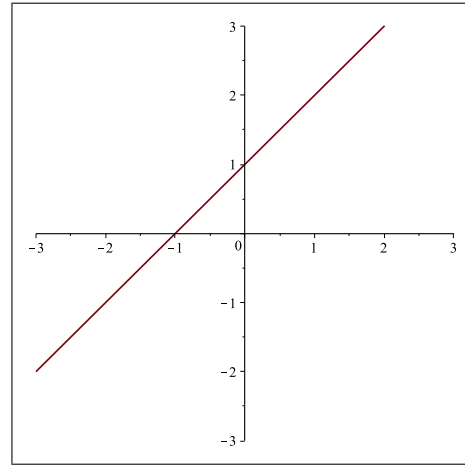
(4) \_\_\_\_\_  $3x - 3$



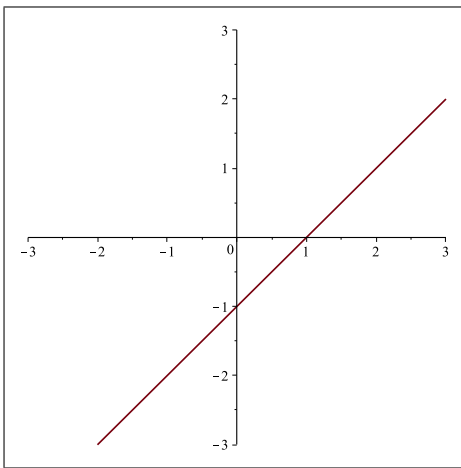
30. Which of the following could be the graph of  $y = -x + 1$ ?



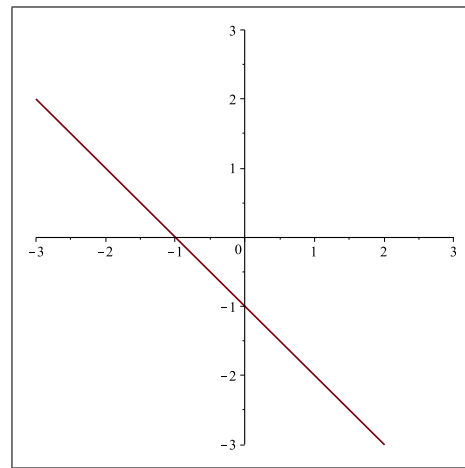
(A)



(B)



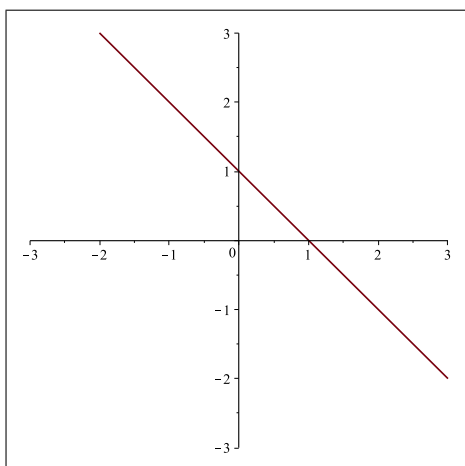
(C)



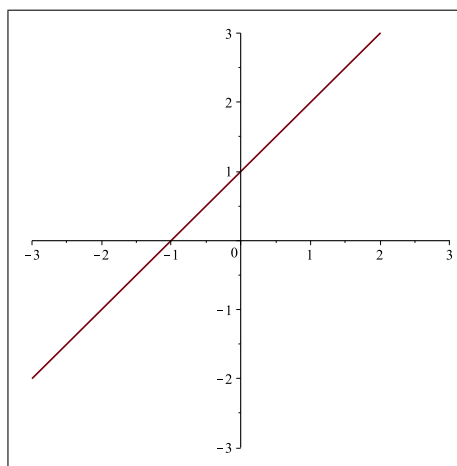
(D)

- (1) \_\_\_\_\_ (A)  
(2) \_\_\_\_\_ (B)  
(3) \_\_\_\_\_ (C)  
(4) \_\_\_\_\_ (D)

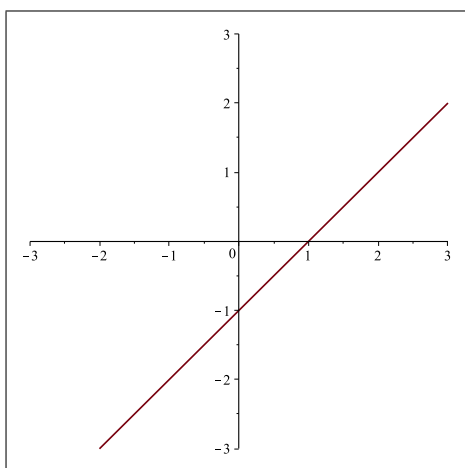
31. Which of the following could be the graph of  $x = -y - 1$ ?



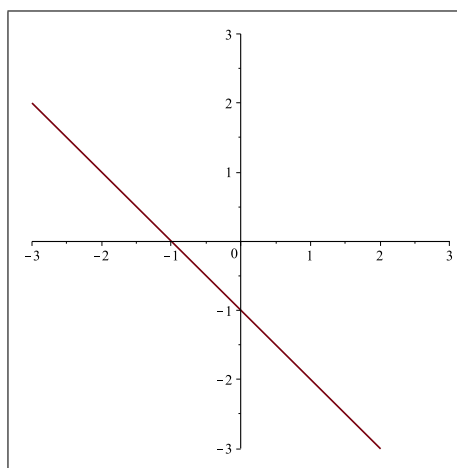
(A)



(B)



(C)



(D)

- (1) \_\_\_\_\_ (A)  
(2) \_\_\_\_\_ (B)  
(3) \_\_\_\_\_ (C)  
(4) \_\_\_\_\_ (D)

Solutions:

1.(3)	16.(2)
2.(1)	17.(1)
3.(1)	18.(4)
4.(2)	19.(2)
5.(1)	20.(3)
6.(2)	21.(1)
7.(3)	22.(2)
8.(4)	23.(2)
9.(1)	24.(1)
10.(1)	25.(2)
11.(1)	26.(4)
12.(4)	27.(2)
13.(4)	28.(2)
14.(3)	29.(2)
15.(2)	30.(A)
	31.(D)