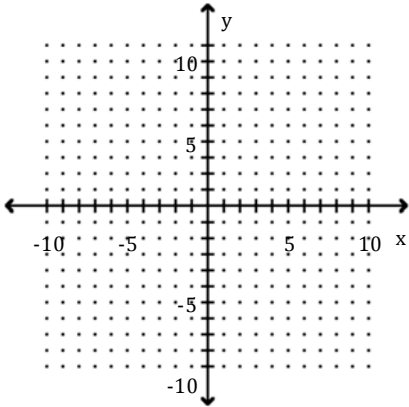


**DIRECTIONS:** In this collection of exercises as well as on the actual test, **YOU ARE NOT ALLOWED TO USE ANY DEVICE AS A CALCULATOR**, for example, cellular phone, iPods, iPads, etc.

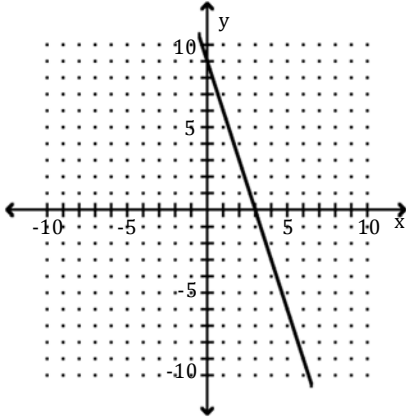
Use the slope-intercept form to graph the equation.

1)  $y = -3x - 9$

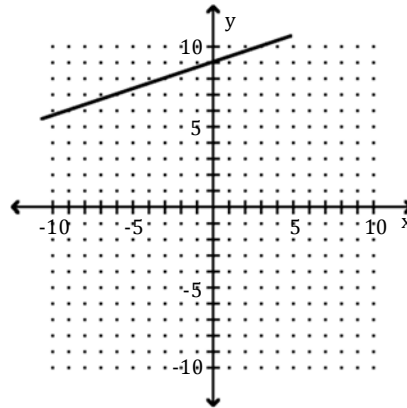
1) \_\_\_\_\_



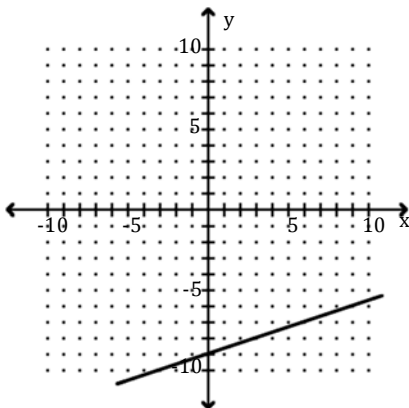
A)



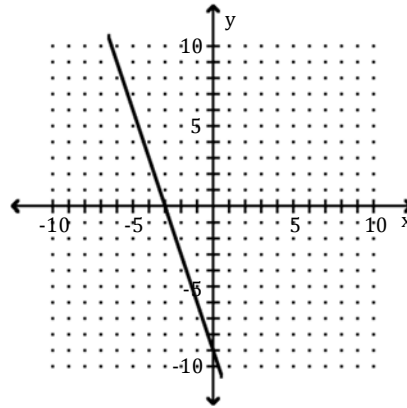
B)



C)



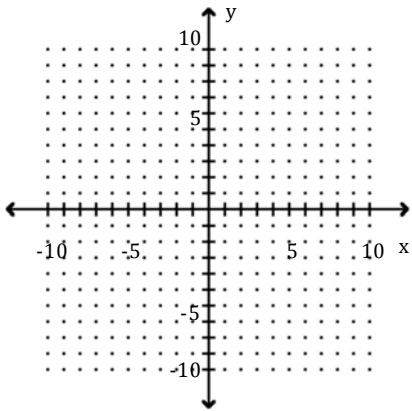
D)



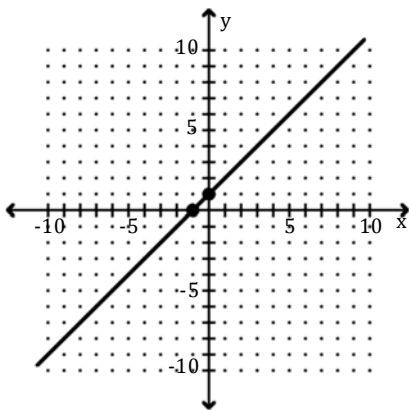
Graph the linear equation by finding and plotting its intercepts.

2)  $x + y = -1$

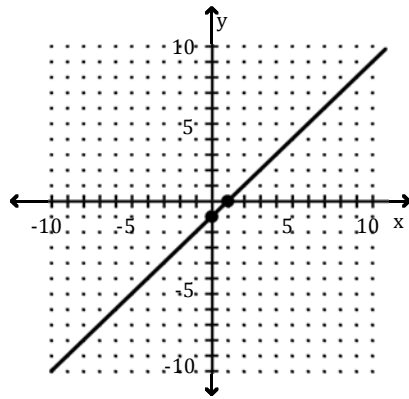
2) \_\_\_\_\_



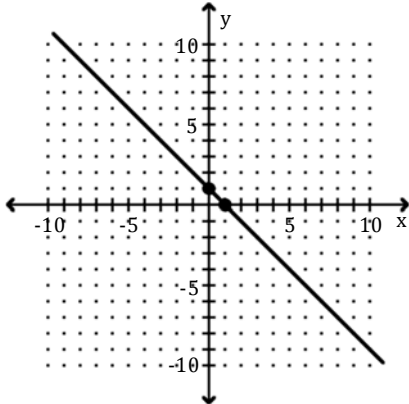
A)



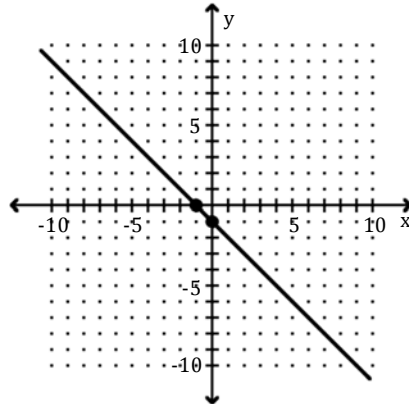
B)



C)



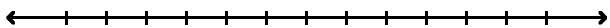
D)



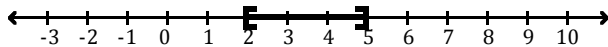
Solve the inequality. Graph the solution set and write it in interval notation.

3)  $-17 \leq -4x + 3 \leq -5$

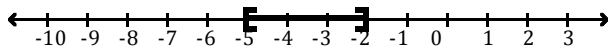
3) \_\_\_\_\_



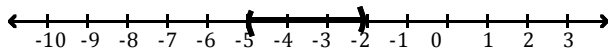
A)  $[2, 5]$



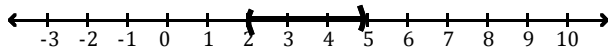
B)  $[-5, -2]$



C)  $(-5, -2)$

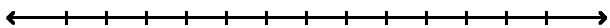


D)  $(2, 5)$

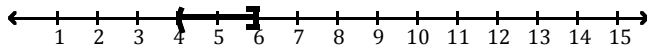


4)  $6 \leq 2(x - 1) \leq 10$

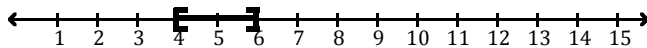
4) \_\_\_\_\_



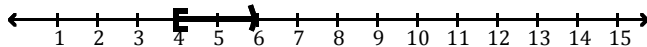
A)  $(4, 6]$



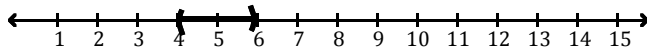
B)  $[4, 6]$



C)  $[4, 6)$



D)  $(4, 6)$



Write an equation of the line with the given slope,  $m$ , and  $y$  - intercept  $(0, b)$ .

5)  $m = 4, b = 7$

5) \_\_\_\_\_

A)  $y = 7x + 4$

B)  $y = -7x - 4$

C)  $y = -4x - 7$

D)  $y = 4x + 7$

Find an equation of the line with the given slope that passes through the given point. Write the equation in the form  $Ax + By = C$ .

6)  $m = 6; (4, 9)$

6) \_\_\_\_\_

A)  $6x - y = -33$

B)  $6x - y = 15$

C)  $6x - y = -9$

D)  $6x - y = 50$

Practice Intermediate Exercises

Find an equation of the line through the pair of points. Write the equation in the form  $Ax + By = C$ .

7)  $(-7, -9)$  and  $(0, 2)$

- A)  $-11x - 7y = -14$     B)  $11x - 7y = -14$     C)  $-2x + 2y = -4$     D)  $2x - 2y = -4$

7) \_\_\_\_\_

Solve the system of equations by either the addition method or the substitution method.

8)  $\begin{cases} x = 5y - 16 \\ 5x - 6y = -23 \end{cases}$

- A) no solution    B)  $(-2, 4)$     C)  $(1, 4)$     D)  $(-1, 3)$

8) \_\_\_\_\_

Perform the indicated operation.

9)  $(5x - 2) + (12x + 18)$

- A)  $17x - 16$     B)  $17x^2 + 16$     C)  $60x^2 - 36$     D)  $17x + 16$

9) \_\_\_\_\_

10)  $(-6x - 6) - (-13x + 9)$

- A)  $-19x + 3$     B)  $-8x^2$     C)  $7x + 3$     D)  $7x - 15$

10) \_\_\_\_\_

Multiply.

11)  $(z + 9)(z + 8)$

- A)  $z^2 + 17z + 17$     B)  $2z^2 + 72$     C)  $z^2 + 17z + 72$     D)  $2z + 72$

11) \_\_\_\_\_

12)  $(7z + 6)^2$

- A)  $7z^2 + 36$     B)  $7z^2 + 84z + 36$     C)  $49z^2 + 36$     D)  $49z^2 + 84z + 36$

12) \_\_\_\_\_

13)  $(x + 8)(x - 8)$

- A)  $x^2 - 16$     B)  $x^2 - 16x - 64$     C)  $x^2 + 16x - 64$     D)  $x^2 - 64$

13) \_\_\_\_\_

Divide.

14)  $\frac{24r^6 - 40r^3}{8r}$

- A)  $3r^5 - 5r^2$     B)  $24r^5 - 40r^2$     C)  $3r^6 - 5r^3$     D)  $3r^7 - 5r^4$

14) \_\_\_\_\_

15)  $\frac{-24x^8 + 36x^7 - 18x^5 - 24x^3}{-6x^5}$

- A)  $4x^3 - 6x^2 + 3 + \frac{4}{x^2}$     B)  $4x^3 - 2x^2 + 3$   
 C)  $-4x^3 + 6x^2 - 3 - \frac{4}{x^2}$     D)  $4x^3 - 6x^2 + 3$

15) \_\_\_\_\_

16)  $(x^2 - 2x - 35) \div (x + 5)$

- A)  $x - 7$     B)  $x^2 - 7$     C)  $x^2 - 2$     D)  $x - 2$

16) \_\_\_\_\_

17)  $(-8x^3 + 18x^2 - 11x + 21) \div (-2x + 3)$

- A)  $4x^2 - 3x + 1 + \frac{18}{-2x+3}$     B)  $4x^2 - 3x + 1 + \frac{21}{-2x+3}$   
 C)  $4x^2 - 3x + 1$     D)  $x^2 + 1 + \frac{-3}{-2x+3}$

17) \_\_\_\_\_

Practice Intermediate Exercises

18)  $\frac{4m^3+23m^2-33m+14}{m+7}$  18) \_\_\_\_\_  
 A)  $4m^2 - 5m + 2$       B)  $4m^2 + 5m + 2$       C)  $m^2 + 5m + 4$       D)  $m^2 + 6m + 7$

19)  $(-2x^5 - x^3 - 4x^2 + 29x + 12) \div (x^2 - 3)$  19) \_\_\_\_\_  
 A)  $-2x^3 - 7x - 4 + \frac{8x+24}{x^2-3}$       B)  $-2x^3 - 7x - 4 + \frac{8x}{x^2-3}$   
 C)  $-2x^3 - 7x + 4 + \frac{8x}{x^2-3}$       D)  $-2x^3 - 7x - 4 - \frac{8x}{x^2-3}$

**Factor the polynomial completely.**

20)  $-18a^3 + 10a$  20) \_\_\_\_\_  
 A)  $-2(9a^3 + 5a)$       B)  $-2a(9a^2 + 5)$       C)  $-2a(9a^2 - 5)$       D)  $-2a^2(9a - 5)$

21)  $27x^6 - 6x^4 - 30x^2$  21) \_\_\_\_\_  
 A)  $x^2(27x^4 - 6x^2 - 30)$       B)  $3x^2(9x^4 - 2x^2 - 10)$   
 B)  $3(9x^6 - 2x^4 - 10x^2)$       C)  $3x(9x^4 - 2x^2 - 10)$

22)  $15a(a - b) + (a - b)$  22) \_\_\_\_\_  
 A)  $(a - b)(15a + 1)$       B)  $15a(a - b)$   
 C)  $(15a^2 - 15ab) + (a - b)$       D)  $16a(a - b)$

23)  $x^2 + 6x - 16$  23) \_\_\_\_\_  
 A) prime polynomial      B)  $(x + 8)(x - 2)$       C)  $(x - 8)(x + 1)$       D)  $(x - 8)(x + 2)$

24)  $x^2 + 47x + 48$  24) \_\_\_\_\_  
 A)  $(x + 12)(x + 4)$       B)  $(x + 48)(x + 1)$       C) prime polynomial      D)  $(x + 48)(x - 1)$

25)  $x^2 + 2xy - 35y^2$  25) \_\_\_\_\_  
 A)  $(x - y)(x + 5y)$       B)  $(x + 7y)(x - 5y)$       C)  $(x - 7y)(x + y)$       D)  $(x - 7y)(x + 5y)$

26)  $3x^2 - 15x + 18$  26) \_\_\_\_\_  
 A)  $3(x - 2)(x - 3)$       B)  $(x - 2)(3x - 9)$       C)  $3(x - 6)(x + 1)$       D) prime polynomial

27)  $9x^2 - x - 230$  27) \_\_\_\_\_  
 A)  $(9x + 46)(x - 5)$       B)  $(9x - 46)(x + 5)$       C)  $(9x + 5)(x - 46)$       D)  $(9x - 5)(x + 46)$

28)  $6x^2 + 17x + 12$  28) \_\_\_\_\_  
 A)  $(6x + 4)(x + 3)$       B) prime polynomial      C)  $(3x - 4)(2x - 3)$       D)  $(3x + 4)(2x + 3)$

29)  $7x^2 - 5x - 2$  29) \_\_\_\_\_  
 A)  $(7x + 1)(x - 2)$       B)  $(7x + 2)(x - 1)$       C)  $(7x - 2)(x + 1)$       D)  $(7x - 1)(x + 2)$

30)  $6x^2 + 13x + 6$  30) \_\_\_\_\_  
 A) prime polynomial      B)  $(6x + 3)(x + 2)$       C)  $(2x + 3)(3x + 2)$       D)  $(2x - 3)(3x - 2)$

31)  $15x^2 - 65x - 50$  31) \_\_\_\_\_  
 A)  $5(3x + 2)(x - 5)$       B) prime polynomial      C)  $5(3x - 2)(x + 5)$       D)  $(15x + 10)(x - 5)$

Practice Intermediate Exercises

- 32)  $x^2 - 4x + 4$  32) \_\_\_\_\_  
 A)  $(x + 2)^2$  B)  $(x - 2)(x + 2)$  C)  $(x - 2)^2$  D)  $(x - 4)(x + 4)$
- 33)  $x^2 + 18x + 81$  33) \_\_\_\_\_  
 A)  $(x - 9)^2$  B) prime polynomial C)  $(x + 9)(x - 9)$  D)  $(x + 9)^2$
- 34)  $9x^2 - 12x + 4$  34) \_\_\_\_\_  
 A)  $(3x + 2)^2$  B)  $(9x + 1)(x + 4)$  C)  $(3x - 2)^2$  D)  $(3x - 2)(3x + 2)$
- 35)  $x^2 - 49$  35) \_\_\_\_\_  
 A)  $(x + 7)(x - 7)$  B) prime polynomial C)  $(x + 7)^2$  D)  $(x - 7)^2$
- 36)  $25x^2 - 9$  36) \_\_\_\_\_  
 A) prime polynomial B)  $(5x + 3)^2$  C)  $(5x + 3)(5x - 3)$  D)  $(5x - 3)^2$
- 37)  $z^2 - 81$  37) \_\_\_\_\_  
 A)  $(z + 9)^2$  B)  $(z + 9)(z - 9)$  C)  $(z - 9)^2$  D) prime polynomial
- 38)  $81x^2 - 49$  38) \_\_\_\_\_  
 A)  $(9x + 7)^2$  B)  $(9x + 7)(9x - 7)$  C) prime polynomial D)  $(9x - 7)^2$
- 39)  $3x^2 - 75$  39) \_\_\_\_\_  
 A)  $3(x + 5)^2$  B) prime polynomial C)  $3(x - 5)^2$  D)  $3(x + 5)(x - 5)$

**Solve.**

- 40) If the sides of a square are increased by 2 meters, the area becomes 36 square meters. Find the length of a side of the original square. 40) \_\_\_\_\_  
 A) 2 m B) 4 m C) 8 m D) 6 m
- 41) An object is thrown upward from the top of a 160-foot building with an initial velocity of 48 feet per second. The height  $h$  of the object after  $t$  seconds is given by the quadratic equation  $h = -16t^2 + 48t + 160$ . When will the object hit the ground? 41) \_\_\_\_\_  
 A) 160 sec B) 2 sec C) 5 sec D) -2 sec

**Use the quadratic formula to solve the quadratic equation.**

- 42)  $4m^2 + 11m = 0$  42) \_\_\_\_\_  
 A)  $\frac{11}{4}, 0$  B)  $-\frac{11}{4}, 0$  C) 0 D)  $\pm \frac{11}{4}$
- 43)  $x^2 + 11x + 28 = 0$  43) \_\_\_\_\_  
 A) 28, 0 B) 4, 7 C) -4, -7 D) 4, -7

**Perform the indicated operation. Simplify if possible.**

- 44)  $\frac{9}{4x} - \frac{2}{5x}$  44) \_\_\_\_\_  
 A)  $\frac{37}{40x}$  B)  $\frac{7}{20x}$  C)  $\frac{37}{20x^2}$  D)  $\frac{37}{20x}$

Practice Intermediate Exercises

45)  $\frac{4}{r} + \frac{6}{r-1}$  45) \_\_\_\_\_  
 A)  $\frac{10r-4}{r(1-r)}$  B)  $\frac{4r-10}{r(1-r)}$  C)  $\frac{4r-10}{r(r-1)}$  D)  $\frac{10r-4}{r(r-1)}$

Perform the indicated operation. Simplify if possible.

46)  $\frac{10}{3x-15} + \frac{x}{x^2-25}$  46) \_\_\_\_\_  
 A)  $\frac{13x+50}{3(x+5)(x-5)}$  B)  $\frac{x+10}{3(x+5)(x-5)}$  C)  $\frac{11x+50}{3(x+5)(x-5)}$  D)  $\frac{13x}{3(x+5)(x-5)}$

47)  $\frac{8}{x} + \frac{9}{x-7}$  47) \_\_\_\_\_  
 A)  $\frac{56x-17}{x(7-x)}$  B)  $\frac{17x-56}{x(x-7)}$  C)  $\frac{56x-17}{x(x-7)}$  D)  $\frac{17x-56}{x(7-x)}$

48)  $\frac{m-5}{m^2+5m-14} + \frac{3m-2}{m^2+3m-10}$  48) \_\_\_\_\_  
 A)  $\frac{4m^2+19m-39}{(m+2)(m-7)(m-5)}$  B)  $\frac{4m^2+19m-39}{(m-2)(m+7)(m+5)}$   
 C)  $\frac{4m-7}{2m^2+8m-24}$  D)  $4m - 7$

49)  $\frac{3}{y^2-3y+2} + \frac{5}{y^2-1}$  49) \_\_\_\_\_  
 A)  $\frac{7y-8}{(y-1)(y+1)(y-2)}$  B)  $\frac{30y-7}{(y-1)(y+1)(y-2)}$   
 C)  $\frac{8y-7}{(y-1)(y+1)(y-2)}$  D)  $\frac{8y-7}{(y-1)(y-2)}$

50)  $\frac{7}{z^2} - \frac{2}{z}$  50) \_\_\_\_\_  
 A)  $\frac{7z+2}{z^2}$  B)  $\frac{2z-7}{z}$  C)  $\frac{7-2z}{z^2}$  D)  $\frac{7+2z}{z^2}$

51)  $\frac{b}{b^2-25} + \frac{5}{b+5} - \frac{6}{b}$  51) \_\_\_\_\_  
 A)  $\frac{25(b+6)}{b(b+5)(b-5)}$  B)  $\frac{-25(b-6)}{b(b+5)(b-5)}$  C)  $\frac{6b^2-25b+150}{b(b+5)(b-5)}$  D)  $\frac{25(b-6)}{(b+5)(b-5)}$

52)  $\frac{12}{x^2+3x} + \frac{7}{x} + \frac{4}{x+3}$  52) \_\_\_\_\_  
 A)  $\frac{4}{x}$  B)  $\frac{11}{x}$  C)  $\frac{7}{x}$  D)  $\frac{28}{x}$

**Answer Key**

- 1) D
- 2) D
- 3) A
- 4) B
- 5) D
- 6) B
- 7) B
- 8) D
- 9) D
- 10) D
- 11) C
- 12) D
- 13) D
- 14) A
- 15) A
- 16) A
- 17) A
- 18) A
- 19) B
- 20) C
- 21) B
- 22) A
- 23) B
- 24) C
- 25) B
- 26) A
- 27) B
- 28) D
- 29) B
- 30) C
- 31) A
- 32) C
- 33) D
- 34) C
- 35) A
- 36) C
- 37) B
- 38) B
- 39) D
- 40) B
- 41) C
- 42) B
- 43) C
- 44) D
- 45) D
- 46) A
- 47) B
- 48) B
- 49) C
- 50) C
- 51) B
- 52) B

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