

**This summer packet must be printed out and completed by the first day of school.  
Please show all of your work and circle your answer choices.  
There will be a test on this packet at the end of the first week.**

**Solve each proportion.**

1)  $\frac{8}{n} = \frac{3}{4}$

A)  $\{-7.067\}$

B)  $\{7.1\}$

C)  $\{-7.3\}$

D)  $\{10.67\}$

2)  $-\frac{2}{k} = \frac{4}{2}$

A)  $\{-8.07\}$

B)  $\{-1\}$

C)  $\{-3.9\}$

D)  $\{5.9\}$

3)  $\frac{6}{a} = -\frac{5}{7}$

A)  $\{-5.2\}$

B)  $\{9\}$

C)  $\{-8.4\}$

D)  $\{-9.6\}$

4)  $-\frac{n}{6} = -\frac{2}{8}$

A)  $\{4\}$

B)  $\{1.5\}$

C)  $\{-2.27\}$

D)  $\{-3.2\}$

5)  $\frac{k}{10} = \frac{5k-3}{5}$

A)  $\left\{1\frac{1}{5}\right\}$

B)  $\left\{-\frac{21}{4}\right\}$

C)  $\left\{-\frac{3}{2}\right\}$

D)  $\left\{\frac{2}{3}\right\}$

6)  $\frac{2a-9}{a} = \frac{4}{3}$

A)  $\left\{-\frac{19}{5}\right\}$

B)  $\left\{5\frac{4}{9}\right\}$

C)  $\left\{\frac{27}{2}\right\}$

D)  $\{9\}$

**Solve each equation.**

7)  $17x = -289$

A)  $\{-17\}$

B)  $\{-20\}$

C)  $\{17\}$

D)  $\{8\}$

8)  $7 = \frac{x}{14}$

A)  $\left\{\frac{1}{2}\right\}$

B)  $\{21\}$

C)  $\{-7\}$

D)  $\{98\}$

9)  $0 = 17 + x$

A)  $\{17\}$

B)  $\{-17\}$

C)  $\{0\}$

D)  $\{12\}$

10)  $0 = \frac{r}{4}$

A)  $\{-4\}$

B)  $\{0\}$

C)  $\{-9\}$

D)  $\{4\}$

11)  $-14 = 3m - m$

- A)  $\{-15\}$       B)  $\{-3\}$   
C)  $\{13\}$       D)  $\{-7\}$

12)  $-16 = -2r - 2r$

- A) { All real numbers. }  
B)  $\{14\}$   
C)  $\{13\}$   
D)  $\{4\}$

13)  $\frac{14}{9}a = \frac{14}{3}$

- A)  $\left\{\frac{28}{9}\right\}$       B)  $\{3\}$   
C)  $\left\{\frac{56}{9}\right\}$       D)  $\left\{\frac{3}{5}\right\}$

14)  $x + \frac{5}{2} = \frac{5}{2}$

- A)  $\{5\}$       B)  $\left\{\frac{25}{4}\right\}$   
C)  $\{0\}$       D)  $\{1\}$

15)  $-3(4 - 3x) = 3x - 36$

- A)  $\{-15\}$       B)  $\{-4\}$   
C)  $\{-16\}$       D)  $\{2\}$

16)  $9 + 8n = 3(2n + 7)$

- A)  $\{-7\}$       B)  $\{-5\}$   
C)  $\{6\}$       D)  $\{1\}$

17)  $-10(1 - 8x) = 7(12x - 6)$

- A)  $\{-22\}$   
B)  $\{11\}$   
C)  $\{8\}$   
D) { All real numbers. }

18)  $-2(m - 12) = -6 + 3(m - 5)$

- A)  $\{10\}$       B)  $\{5\}$   
C)  $\{-7\}$       D)  $\{9\}$

19)  $\frac{7}{3} = \frac{1}{3}n + \frac{4}{3} + 1$

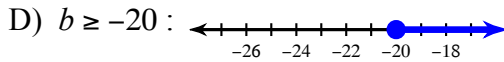
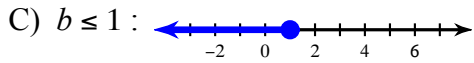
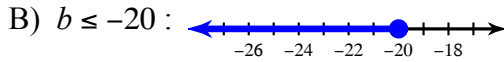
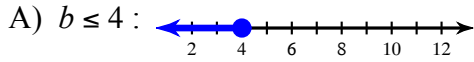
- A)  $\left\{-\frac{6}{5}\right\}$       B)  $\{0\}$   
C)  $\left\{-\frac{8}{5}\right\}$       D)  $\left\{-1\frac{2}{3}\right\}$

20)  $\frac{3}{2}v - 2v = \frac{1}{2}$

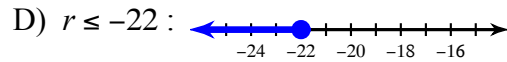
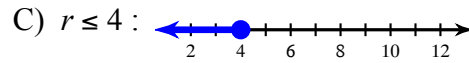
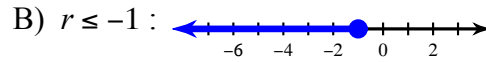
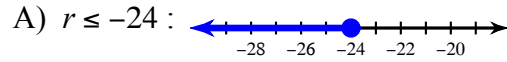
- A)  $\{-1\}$       B)  $\left\{\frac{5}{4}\right\}$   
C)  $\left\{\frac{4}{5}\right\}$       D)  $\{-2\}$

**Solve each inequality and graph its solution.**

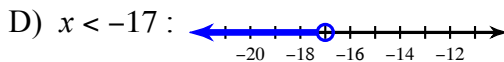
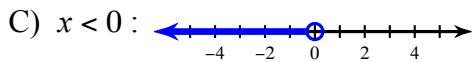
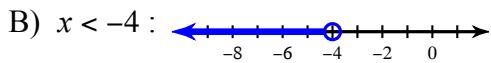
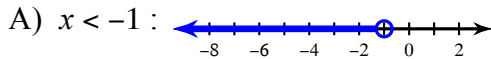
21)  $-9 \leq -3b - 2 + 5$



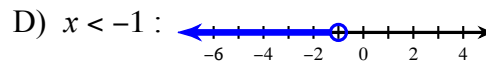
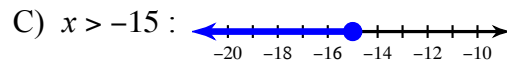
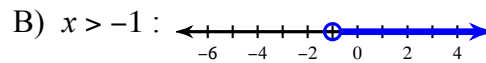
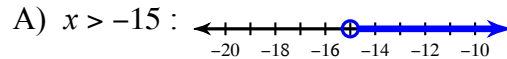
22)  $-3 \geq 5r - 2r$



23)  $0 > 5 + 2x + 3$



24)  $7x - 29 < -6(-x + 5)$



**Solve each compound inequality.**

25)  $0 \leq \frac{x}{5} < 2$

A)  $0 \leq x < 10$

B)  $x \geq -9$

C)  $x < 10$

D)  $x \geq 0$

26)  $-14 \leq x - 5 < -7$

A)  $-3 < x < 1$

B)  $x > 0$

C)  $-9 \leq x < -2$

D)  $x > 6$

**Solve each equation for the indicated variable.**

27)  $g = a - c$ , for  $a$

A)  $a = g + c$

B)  $a = \frac{c}{g}$

C)  $a = -\frac{g}{c}$

D)  $a = -g - c$

28)  $g = x - c$ , for  $x$

A)  $x = g + c$

B)  $x = \frac{c}{g}$

C)  $x = -\frac{g}{c}$

D)  $x = cg$

29)  $u = xk$ , for  $x$

A)  $x = -u - k$

B)  $x = ku$

C)  $x = -\frac{k}{u}$

D)  $x = \frac{u}{k}$

30)  $u = k + a$ , for  $a$

A)  $a = \frac{k}{u}$

B)  $a = u - k$

C)  $a = \frac{u}{k}$

D)  $a = -\frac{u}{k}$

31)  $g = -3 - 2a$ , for  $a$

- A)  $a = -g - 1$       B)  $a = \frac{g-3}{2}$   
C)  $a = \frac{-g-3}{2}$       D)  $a = \frac{g+3}{2}$

32)  $\frac{4c}{3a} = 3$ , for  $a$

- A)  $a = 4c + 9$       B)  $a = \frac{4c}{9}$   
C)  $a = \frac{9}{4c}$       D)  $a = -\frac{4c}{9}$

33)  $-3ca = -4$ , for  $a$

- A)  $a = -\frac{4}{3c}$       B)  $a = \frac{3c}{4}$   
C)  $a = -\frac{3c}{4}$       D)  $a = \frac{4}{3c}$

34)  $\frac{3a}{c} = 1$ , for  $a$

- A)  $a = 3c$       B)  $a = -c + 3$   
C)  $a = -\frac{c}{3}$       D)  $a = \frac{c}{3}$

**Simplify.**

35)  $\sqrt{16}$

- A)  $4\sqrt{3}$       B) 4  
C) 6      D) 12

36)  $\sqrt{20}$

- A)  $4\sqrt{2}$       B)  $2\sqrt{5}$   
C)  $2\sqrt{2}$       D)  $\sqrt{30}$

37)  $\sqrt{36}$

- A)  $4\sqrt{2}$       B) 6  
C)  $2\sqrt{3}$       D)  $6\sqrt{2}$

38)  $\sqrt{24}$

- A)  $2\sqrt{6}$       B)  $6\sqrt{6}$   
C)  $5\sqrt{2}$       D) 6

39)  $\sqrt{108}$

- A)  $6\sqrt{3}$       B)  $\sqrt{30}$   
C)  $6\sqrt{5}$       D) 4

40)  $\sqrt{150}$

- A)  $4\sqrt{2}$       B)  $5\sqrt{6}$   
C)  $6\sqrt{6}$       D)  $\sqrt{30}$

41)  $-2\sqrt{36}$

- A)  $-9\sqrt{2}$       B) -12  
C)  $12\sqrt{2}$       D)  $9\sqrt{2}$

42)  $-2\sqrt{8}$

- A)  $8\sqrt{2}$       B)  $-4\sqrt{2}$   
C) 32      D)  $4\sqrt{2}$

43)  $\sqrt{6} \cdot \sqrt{6}$

- A) 6      B) 36  
C)  $4\sqrt{2}$       D)  $2\sqrt{3}$

44)  $-2\sqrt{3} \cdot 3\sqrt{4}$

- A)  $2\sqrt{3}$       B)  $-12\sqrt{3}$   
C)  $\sqrt{7}$       D) 12

45)  $\sqrt{6} \cdot \sqrt{12}$

A) 72

B)  $-12\sqrt{2}$

C)  $3\sqrt{2}$

D)  $6\sqrt{2}$

46)  $\frac{\sqrt{5}}{\sqrt{2}}$

A)  $\frac{2\sqrt{3}}{3}$

B)  $\frac{\sqrt{10}}{2}$

C)  $\frac{\sqrt{6}}{6}$

D)  $\frac{\sqrt{15}}{2}$

47)  $-2\sqrt{2} + 3\sqrt{2}$

A)  $\sqrt{2}$

B)  $4\sqrt{2}$

C)  $5\sqrt{2}$

D)  $7\sqrt{2}$

48)  $2\sqrt{8} - \sqrt{18}$

A)  $2\sqrt{2}$

B)  $6\sqrt{2}$

C)  $\sqrt{2}$

D)  $-2\sqrt{2}$

**Solve each quadratic equation by taking square roots.**

49)  $x^2 = 64$

A)  $\{8, -8\}$

B)  $\{10\}$

C)  $\{10, -10\}$

D)  $\{100, -100\}$

50)  $n^2 - 3 = 18$

A)  $\{\sqrt{21}, -\sqrt{21}\}$

B)  $\{5\sqrt{3}\}$

C)  $\{4\sqrt{3}, -4\sqrt{3}\}$

D)  $\{5\sqrt{3}, -5\sqrt{3}\}$

**Solve each equation by factoring.**

51)  $(2x - 5)(x + 8) = 0$

A)  $\left\{\frac{5}{2}, -8\right\}$

B)  $\{-3, 8\}$

C)  $\left\{-4, -\frac{1}{4}\right\}$

D)  $\left\{\frac{1}{7}, 6\right\}$

52)  $(8x - 1)(x + 3) = 0$

A)  $\left\{-4, \frac{2}{5}\right\}$

B)  $\{-1, -3\}$

C)  $\left\{\frac{1}{8}, -3\right\}$

D)  $\left\{-\frac{7}{5}, 0\right\}$

53)  $m^2 - 7m + 6 = 0$

A)  $\{-2, 8\}$

B)  $\{1, 6\}$

C)  $\{-6\}$

D)  $\{1, 2\}$

54)  $x^2 + x - 6 = 0$

A)  $\{2, -3\}$

B)  $\{-4, -1\}$

C)  $\{5\}$

D)  $\{-5, 8\}$

**Find the slope of a line parallel to each given line.**

55)  $y = -4x + 3$

A) 4

B) -4

C)  $\frac{1}{4}$

D)  $-\frac{1}{4}$

56)  $y = \frac{1}{4}x - 4$

- A)  $\frac{1}{4}$       B) 4  
 C)  $-\frac{1}{4}$       D) -4

**Find the slope of a line perpendicular to each given line.**

57)  $y = -\frac{1}{2}x + 2$

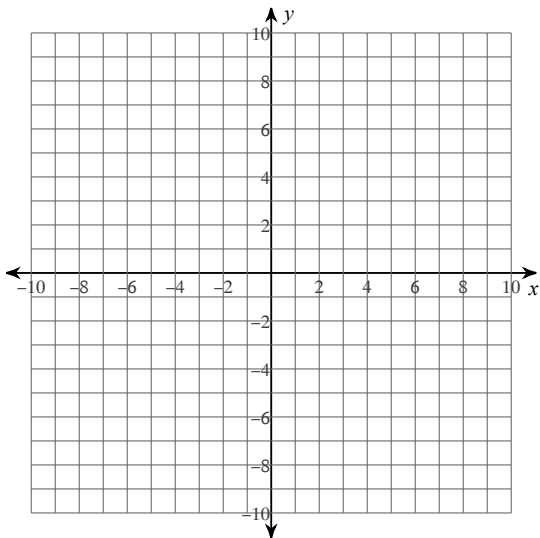
- A) 2      B)  $-\frac{1}{2}$   
 C)  $\frac{1}{2}$       D) -2

58)  $y = -\frac{3}{2}x + 5$

- A)  $-\frac{3}{2}$       B)  $\frac{2}{3}$   
 C)  $-\frac{2}{3}$       D)  $\frac{3}{2}$

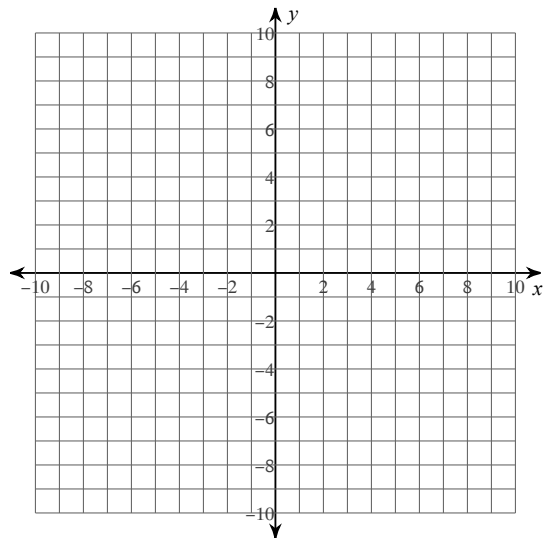
**Solve each system by graphing.**

59)  $y = \frac{1}{2}x - 8$   
 $y = 6x + 3$



- A) (9, 2)      B) (9, -2)  
 C) (1, 9)      D) (-2, -9)

60)  $y = -\frac{1}{4}x - 8$   
 $y = -4x + 7$



- A) (4, -9)      B) (-4, -9)  
 C) (-9, 4)      D) (9, 4)

**Solve each system by substitution.**

61)  $-4x - 2y = 8$

$y = -6x$

- A)  $(-6, -1)$       B)  $(6, -1)$   
C)  $(1, -6)$       D)  $(6, 1)$

62)  $-7x - 6y = -5$

$y = -4x + 15$

- A)  $(-5, 5)$   
B) Infinite number of solutions  
C)  $(5, -5)$   
D)  $(-5, -5)$

**Solve each system by elimination.**

63)  $2x + y = 23$

$2x - y = 9$

- A)  $(-8, 7)$       B)  $(7, -8)$   
C)  $(8, 7)$       D)  $(8, -7)$

64)  $-3x - 4y = 10$

$5x + 4y = -6$

- A)  $(2, -6)$       B)  $(-2, -6)$   
C)  $(-2, -4)$       D)  $(2, -4)$

65)  $-x - 4y = -12$

$3x - 8y = -4$

- A)  $(4, 2)$       B)  $(4, -2)$   
C)  $(-5, 4)$       D)  $(-5, -4)$

66)  $4x + 5y = 0$

$8x - 2y = 0$

- A)  $(1, 0)$       B)  $(0, 0)$   
C)  $(0, -1)$       D)  $(6, 0)$