

## Spring Semester Review

Date \_\_\_\_\_ Period \_\_\_\_\_

Simplify each expression.

1)  $-6(m-3) - 4m(5+7m)$

$$\boxed{-26m + 18 - 28m^2}$$

2)  $-3(7r-3) - 7r(5r+6)$

$$\boxed{-63r + 9 - 35r^2}$$

Solve each equation.

3)  $-324 = -18x$

$$\boxed{\{18\}}$$

4)  $-8(2b-8) = 176$

$$\boxed{\{-7\}}$$

5)  $3(8n+8) = 144$

$$\boxed{\{5\}}$$

Solve each proportion.

6)  $\frac{4}{6} = \frac{k}{10}$

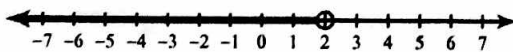
$$\boxed{\{6.66\}}$$

7)  $\frac{2}{9} = \frac{k}{7}$

$$\boxed{\{1.55\}}$$

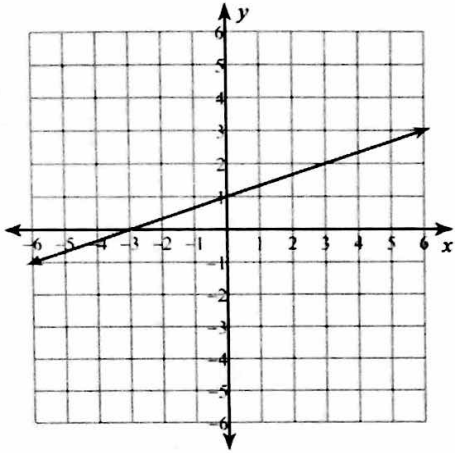
Draw a graph for each inequality.

8)  $p < 2$

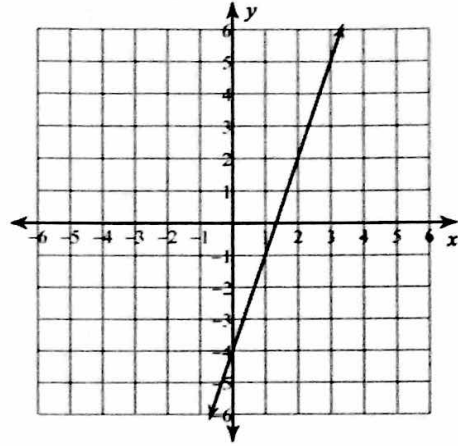


Sketch the graph of each line.

9)  $x$ -intercept =  $-3$ ,  $y$ -intercept =  $1$

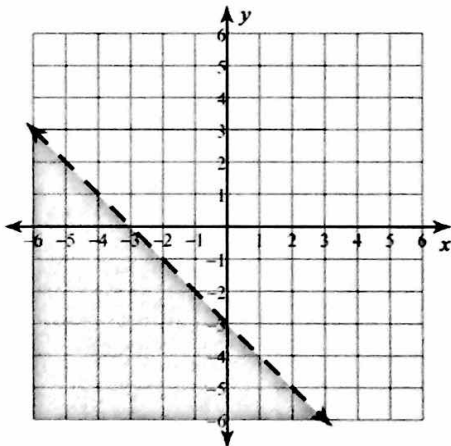


10)  $y = 3x - 4$



Sketch the graph of each linear inequality.

11)  $y < -x - 3$



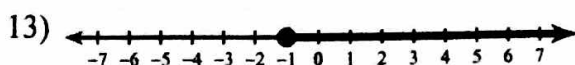
Solve each inequality and graph its solution.

12)  $2 \leq \frac{3+k}{3}$



$k \geq 3$

Write an inequality for each graph.



$k \geq -1$

Find the slope of the line through each pair of points.

14)  $(-9, 0), (13, -18)$

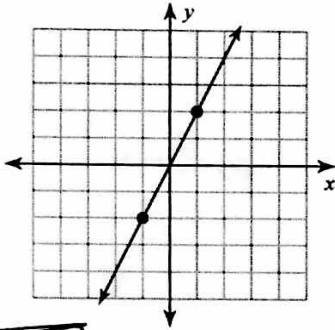
$$\boxed{-\frac{9}{11}}$$

15)  $(3, 11), (-18, 0)$

$$\boxed{\frac{11}{21}}$$

Find the slope of each line.

16)



$$\boxed{2}$$

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

17) Slope =  $-\frac{7}{5}$ , y-intercept =  $-3$

$$\boxed{y = -\frac{7}{5}x - 3}$$

Find each product.

18)  $(5x - 1)(4x + 5)$

$$\boxed{20x^2 + 21x - 5}$$

19)  $(3n + 8)(8n - 2)$

$$\boxed{24n^2 + 58n - 16}$$

Simplify each expression.

20)  $(2 + 2b^2) - (2 + b^2)$

$$\boxed{b^2}$$

21)  $(1 + 2n^2) - (2 - 2n^2)$

$$\boxed{4n^2 - 1}$$

Simplify.

22)  $\sqrt{16}$

$$\boxed{4}$$

23)  $-2\sqrt{294}$

$$\boxed{-14\sqrt{6}}$$

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

24)  $y = -\frac{1}{2}x - 1$   $\boxed{-\frac{1}{2}}$

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

25)  $y = -\frac{5}{3}x - 1$   $\boxed{\frac{3}{5}}$

Solve each equation with the quadratic formula.

26)  $10p^2 + 10p - 14 = 0$

~~$\frac{-5 \pm \sqrt{165}}{10}$~~

$\boxed{\frac{-10 \pm 2\sqrt{165}}{20}}$

27)  $6n^2 - 9n + 1 = 0$

~~$\frac{9 \pm \sqrt{57}}{12}$~~

$\boxed{\frac{9 \pm \sqrt{57}}{12}}$

Factor the common factor out of each expression.

28)  $25yx^2 + 5y + 40y^2x$

$\boxed{5y(5x^2 + 1 + 8xy)}$

Factor each completely using difference of squares.

29)  $9r^2 - 16$

$\boxed{(3r + 4)(3r - 4)}$

Factor each completely.

30)  $b^2 - 10b + 21$

$\boxed{(b - 3)(b - 7)}$