

## Algebra 2 Common Core

Week of September 2, 2014

This week is a refresher of Algebra 1 skills

Complete the following worksheets:

- Review of Algebraic and Numeric Expressions
- Review of Linear Equations
- Solving Multi-Step Equations
- Solving Inequalities
- Graphing Linear Inequalities

## Review of Algebraic and Numeric Expressions

**Evaluate each expression.**

1)  $(7 - 2) \div 5$

2)  $(3 + 3)^2$

3)  $(6 - 3)^2$

4)  $5 + (16 + 2) \div 3$

5)  $(-6 \times 2) \div -3$

6)  $2 + 12 \div 2 + 1$

7)  $-4 - (1 - 5) - (-4)^2$

8)  $-3 \times 2 \times 2(-3 - 1)$

9)  $(4 - 3)(1 - (3 + 5)) \times 5$

10)  $((-16 - (-2 + 1)) \times 2) \div 5$

11)  $2 - 8 \div -2 - 3 - -12 \div -6 \times -2$

12)  $(-11 - 6 - -5 + 1 + 3 \times 2) \div -5$

**Evaluate each using the values given.**

13)  $y + z + 2$ ; use  $y = -6$ , and  $z = 5$

14)  $p(q \div 3 - p)$ ; use  $p = -6$ , and  $q = -3$

15)  $z \div 6 + x + x - 5$ ; use  $x = 1$ , and  $z = 6$

16)  $x(z + 3) + 1 + 3 - y$ ; use  $x = 6$ ,  $y = -5$ , and  $z = 2$

17)  $6 + q + 5 - (q - p) + 15$ ; use  $p = 1$ , and  $q = 1$

18)  $-3 \div 3(a + c(b + 5) - (-6 + a))$ ; use  $a = 1$ ,  $b = -6$ , and  $c = -4$

**Simplify each expression.**

19)  $9x + 9 - 1$

20)  $10n - 4n$

21)  $-9 - 6(-v + 5)$

22)  $-10(-8x + 9) - 8x$

23)  $1 + 4(2 - 3k)$

24)  $-8v + 6(10 + 6v)$

25)  $7(1 + 9v) - 8(-5v - 6)$

26)  $-10(x - 7) - 7(x + 2)$

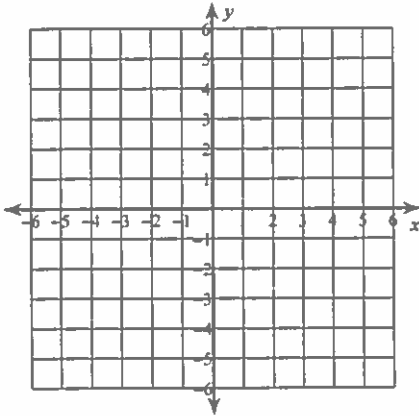
27)  $-2(-6x - 9) - 4(x + 9)$

28)  $9(7k + 8) + 3(k - 10)$

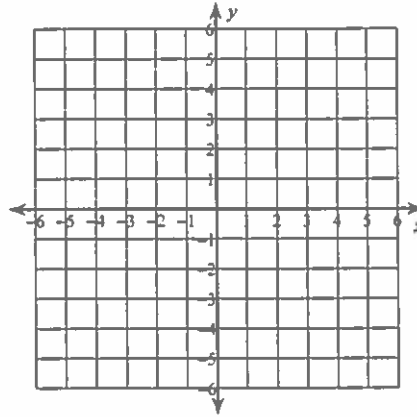
Review of Linear Equations

Sketch the graph of each line.

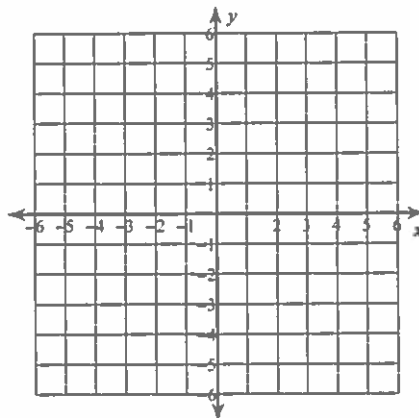
1)  $y = -2x - 2$



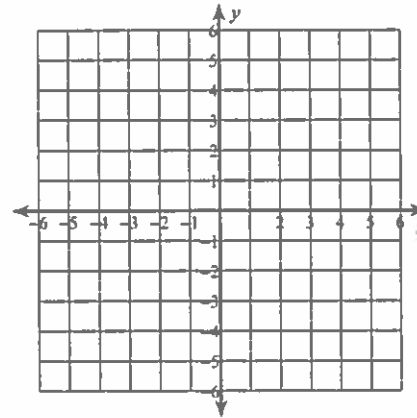
2)  $y = -x - 2$



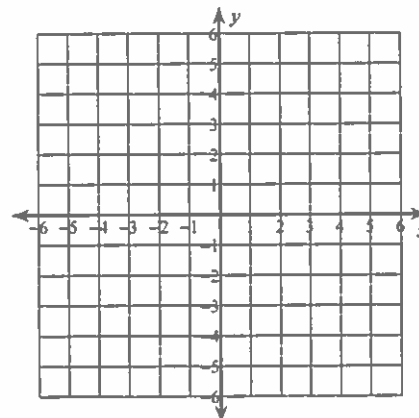
3)  $2x - 5y = 5$



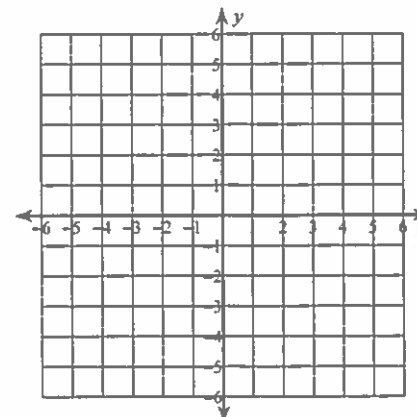
4)  $x = -1$



5)  $32 - 2x = 8y$



6)  $0 = x + \frac{1}{4}y + \frac{1}{2}$



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

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

8) Slope = 9, y-intercept = 4

**Write the standard form of the equation of each line.**

9)  $y = -\frac{7}{5}x + 1$

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

11)  $y + 4 = -7(x - 1)$

12)  $y + 1 = -(x + 3)$

13)  $-10x - y = -5$

14)  $-4 - 2y = -x$

**Write the standard form of the equation of the line through the given point with the given slope.**

15) through: (4, -2), slope = -1

16) through: (-2, 4), slope =  $-\frac{1}{7}$

**Write the standard form of the equation of the line through the given points.**

17) through: (-3, 2) and (0, -1)

18) through: (0, 4) and (-1, -1)

**Write the standard form of the equation of the line described.**

19) through: (2, 0), parallel to  $y = \frac{2}{3}x$

20) through: (-2, 4), parallel to  $y = -\frac{3}{2}x + 3$

21) through: (2, 4), perp. to  $y = -\frac{2}{7}x - 5$

22) through: (5, 0), perp. to  $y = -x + 5$

## Solving Multi-Step Equations

Solve each equation.

1)  $4n - 2n = 4$

2)  $-12 = 2 + 5v + 2v$

3)  $3 = x + 3 - 5x$

4)  $x + 3 - 3 = -6$

5)  $-12 = 3 - 2k - 3k$

6)  $-1 = -3r + 2r$

7)  $6 = -3(x + 2)$

8)  $-3(4r - 8) = -36$

9)  $24 = 6(-x - 3)$

10)  $75 = 3(-6n - 5)$

$$11) -3(1 + 6r) = 14 - r$$

$$12) 6(6v + 6) - 5 = 1 + 6v$$

$$13) -4k + 2(5k - 6) = -3k - 39$$

$$14) -16 + 5n = -7(-6 + 8n) + 3$$

$$15) 10p + 9 - 11 - p = -2(2p + 4) - 3(2p - 2)$$

$$16) -10n + 3(8 + 8n) = -6(n - 4)$$

$$17) 10(x + 3) - (-9x - 4) = x - 5 + 3$$

$$18) 12(2k + 11) = 12(2k + 12)$$

$$19) -12(x - 12) = -9(1 + 7x)$$

$$20) -11 + 10(p + 10) = 4 - 5(2p + 11)$$

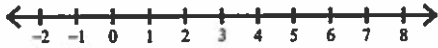
**Critical thinking question:**

21) Explain two ways you could solve  $20 = 5(-3 + x)$

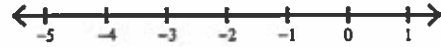
## Solving Inequalities

Solve each inequality and graph its solution.

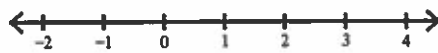
1)  $0 > 3x - 3 - 6$



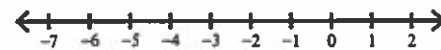
2)  $4x + 1 - 1 \geq -8$



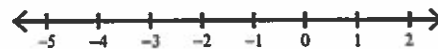
3)  $-1 \leq 2n + 4 - 5$



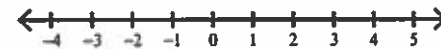
4)  $-6 > 5n + 5 + 4$



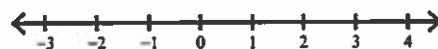
5)  $0 \leq 2n + 3n$



6)  $2p - 4p \leq -2$



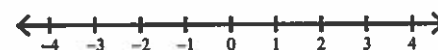
7)  $7 < -(-k - 3) + 2$



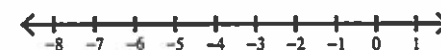
8)  $3 - 2(n - 4) > -1$



9)  $-5(1 - 4a) > -5$

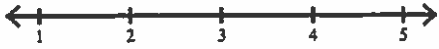


10)  $-2(b + 1) + 4 < 10$

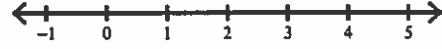




$$11) a - 15 > -4(-6 + 3a)$$



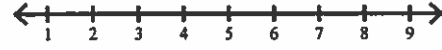
$$12) 3(6b - 1) > 18 - 3b$$



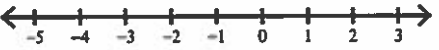
$$13) 26 + m \geq 5(-6 + 3m)$$



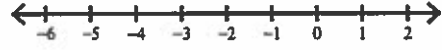
$$14) 20 - 2p > -2(p + 2) + 4p$$



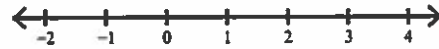
$$15) x + 1 + 1 + 6x > 3(x - 4) - (x - 4)$$



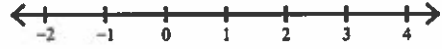
$$16) -6(1 + 6x) < 6(1 - 5x)$$



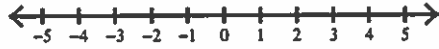
$$17) 2(1 - 4r) < -2(r + 3) - 4$$



$$18) -6(1 + 2x) \geq 6(2x - 1) + 2x$$



$$19) -2(1 - 5x) > -(x + 1) - 1$$



$$20) 5x - (x + 2) > -5(1 + x) + 3$$



**Critical thinking questions:**

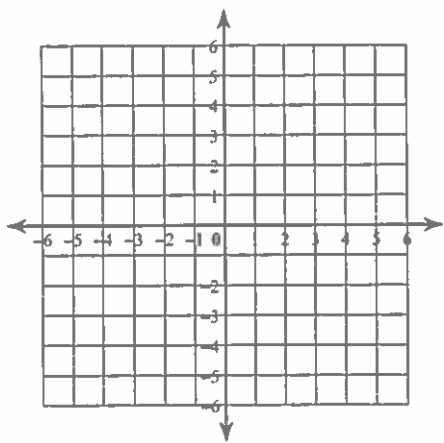
21) Write an inequality with  $x$  on both sides whose solution is  $x \geq 2$

22) Name one particular solution to question #20.

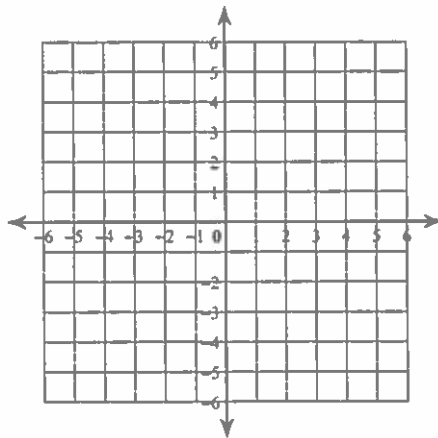
### Graphing Linear Inequalities

Sketch the graph of each linear inequality.

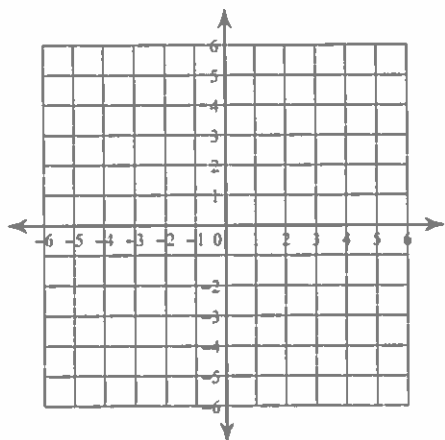
1)  $y \geq -2x - 2$



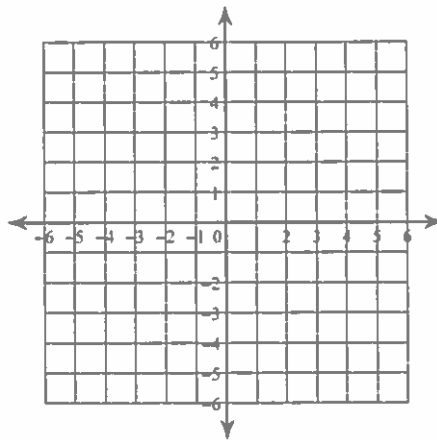
2)  $y \leq -\frac{1}{3}x + 1$



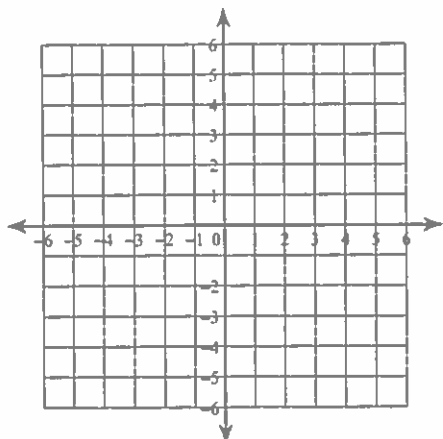
3)  $x \geq -2$



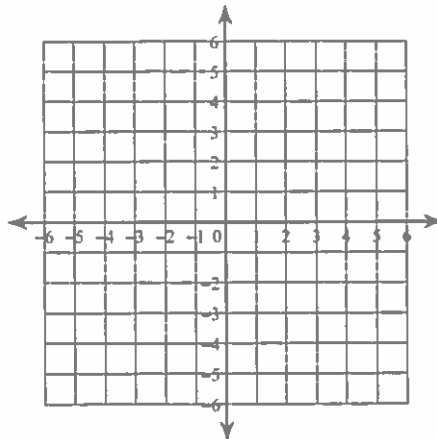
4)  $y < x - 2$



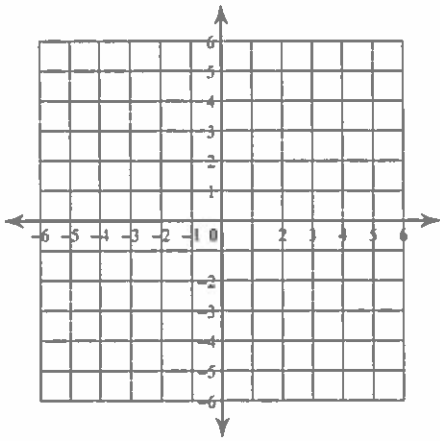
5)  $y \geq x - 2$



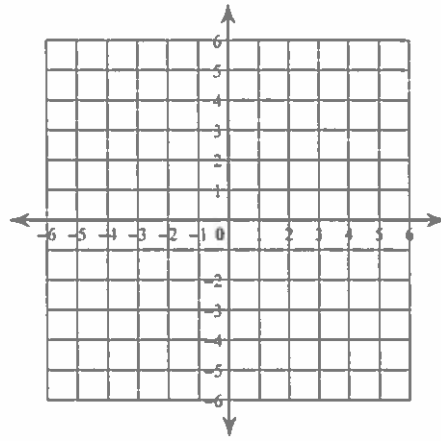
6)  $y < 6x + 1$



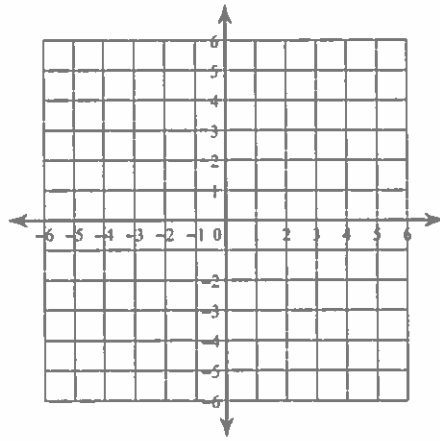
7)  $5x - y \geq 5$



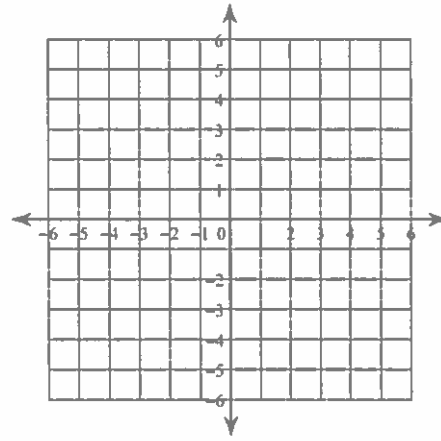
8)  $x + 3y \geq 3$



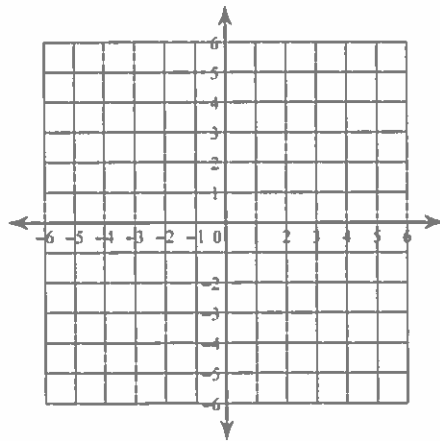
9)  $y \geq 5$



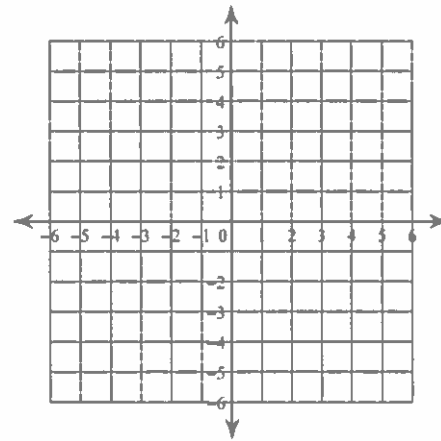
10)  $2x - 5y \leq 10$



11)  $8x - 3y \leq 12$



12)  $x - y \geq 0$



**Critical thinking questions:**

13) Name one particular solution to #11

14) Can you write a linear inequality whose solution contains only points with positive  $x$ -values and positive  $y$ -values? Why or why not?