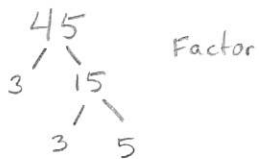


Summer Math for Rising Geometry Students

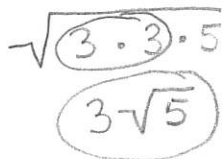
Simplify. *You must keep your answers in radical form - not decimals.*

1) $\sqrt{45}$

example



2) $\sqrt{50}$



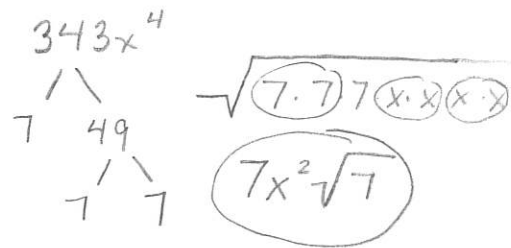
Circle pairs and take them out

3) $\sqrt{36}$

4) $\sqrt{48}$

5) $\sqrt{12}$

6) $\sqrt{343x^4}$



7) $\sqrt{24b}$

8) $\sqrt{36n^3}$

9) $\sqrt{252x^4}$

10) $\sqrt{196x^2}$

$$11) -3\sqrt{20} + 3\sqrt{5} - 3\sqrt{45}$$

$$-3 \cdot 2\sqrt{5} + 3\sqrt{5} - 3 \cdot 3\sqrt{5}$$

$$-6\sqrt{5} + 3\sqrt{5} - 9\sqrt{5}$$

Simplify and
add like
radicals

$$-12\sqrt{5}$$

$$12) -\sqrt{6} + 3\sqrt{6} - 2\sqrt{24}$$

$$13) -3\sqrt{20} + 3\sqrt{12} - 3\sqrt{12}$$

$$14) 3\sqrt{27} - \sqrt{12} - \sqrt{20}$$

$$15) -3\sqrt{8} - 2\sqrt{8} + 2\sqrt{24}$$

$$16) \sqrt{5} \cdot \sqrt{2}$$

$$\sqrt{10}$$

This cannot
be simplified,
so it is
complete

$$17) \sqrt{8} \cdot \sqrt{10}$$

$$18) \sqrt{10} \cdot \sqrt{8}$$

$$19) \sqrt{3} \cdot \sqrt{5}$$

$$20) \sqrt{10} \cdot \sqrt{2}$$

$$21) 5\sqrt{2x^3} \cdot 2\sqrt{5x^3}$$

$$10\sqrt{10x^6}$$

$$10\sqrt{2 \cdot 5 \cdot \cancel{x \cdot x} \cdot \cancel{x \cdot x} \cdot \cancel{x \cdot x}}$$

$$10x^3\sqrt{10}$$

$$22) 2\sqrt{12r} \cdot -\sqrt{15r}$$

$$23) -4\sqrt{6k^2} \cdot \sqrt{12k^2}$$

$$24) 5\sqrt{6x^2} \cdot \sqrt{12x^3}$$

$$25) \frac{3\sqrt{2v^3}}{\sqrt{5v^4}}$$

$$26) \frac{2}{2\sqrt{3k^4}}$$

$$\frac{3v\sqrt{2v}}{v^2\sqrt{5}} \leftarrow \text{Rationalize}$$

$$\frac{3v\sqrt{2v}}{v^2\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{3v\sqrt{10v}}{5v^2} \text{ Simplify}$$

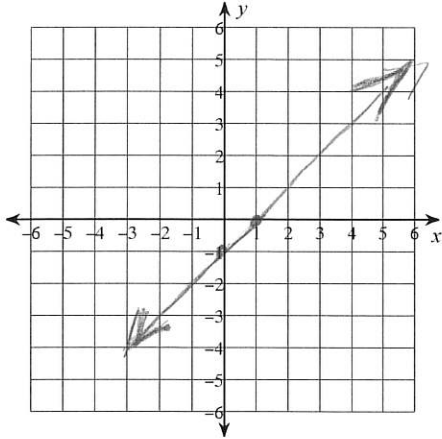
$$\frac{3\sqrt{10v}}{5v}$$

$$27) \frac{3\sqrt{25b^3}}{\sqrt{10b^3}}$$

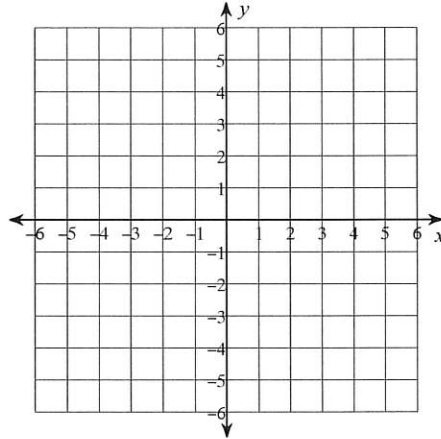
$$28) \frac{\sqrt{3x^3y}}{\sqrt{5x^3y^4}}$$

Sketch the graph of each line.

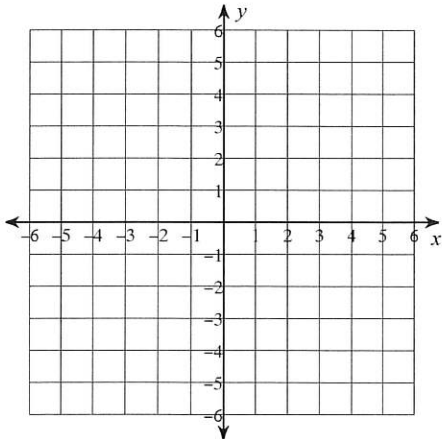
29) x -intercept = 1, y -intercept = -1



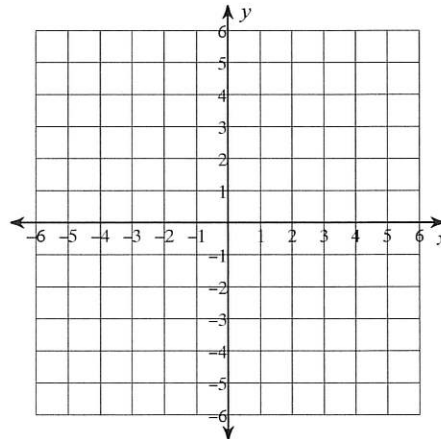
30) x -intercept = -1, y -intercept = 3



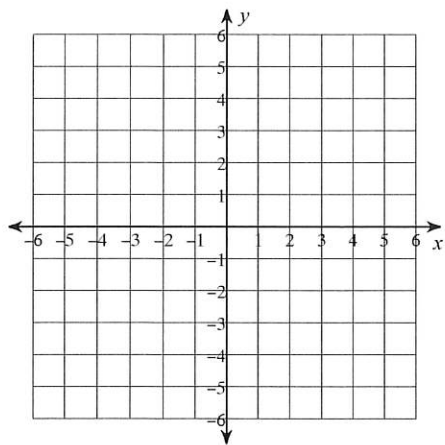
31) x -intercept = 4, y -intercept = 2



32) x -intercept = -1, y -intercept = 4

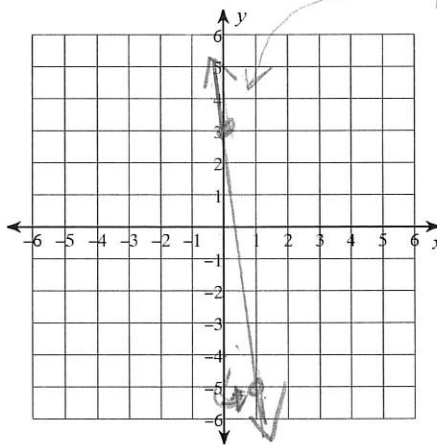


33) x -intercept = -1 , y -intercept = -5



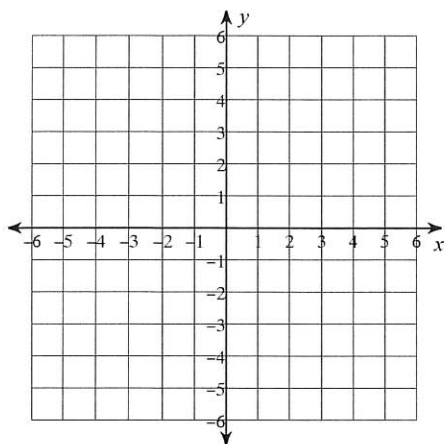
34) $y = -8x + 3$

$m = -8$ $b = 3$

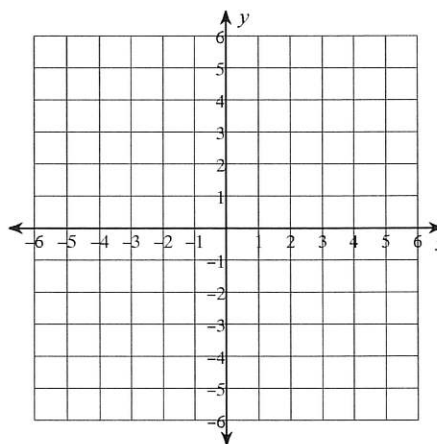


Graph y -intercept
and then
count the
slope.

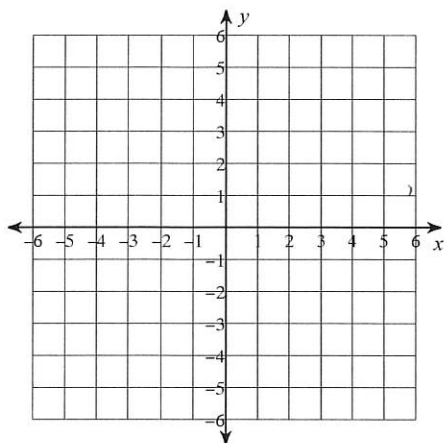
35) $y = \frac{5}{2}x + 1$



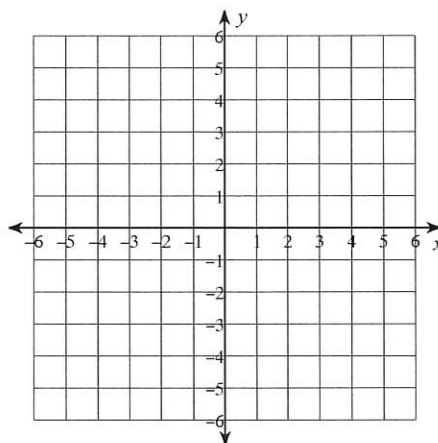
36) $y = -\frac{1}{4}x + 5$



37) $y = \frac{1}{2}x + 3$

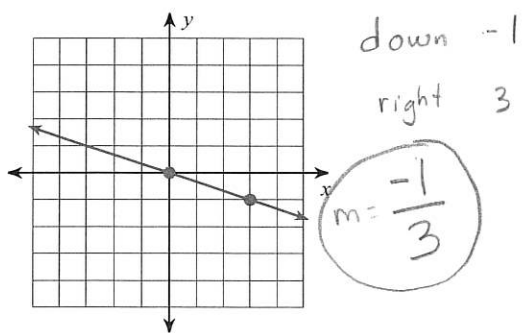


38) $y = -\frac{3}{2}x + 1$

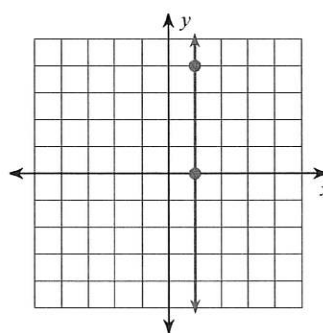


Find the slope of each line.

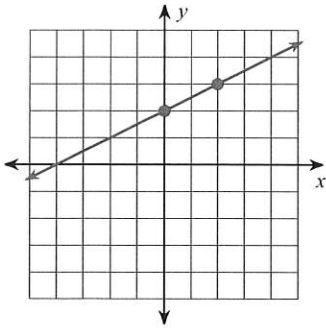
39)



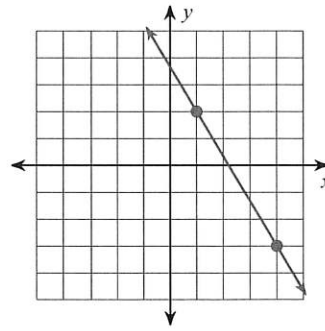
40)



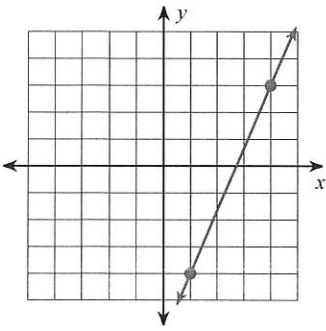
41)



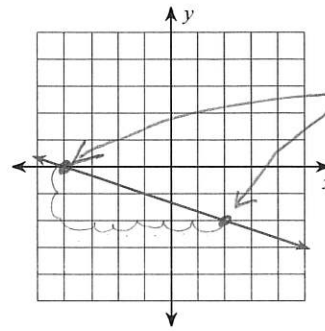
42)



43)



44)



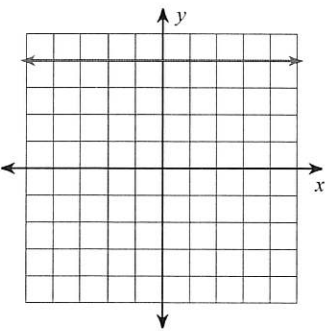
These are the same, but you have to locate where the line crosses a vertical/horizontal intersection.

down -2
right 6

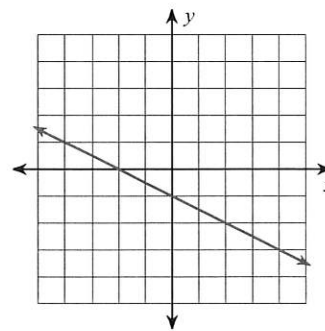
$$m = \frac{-2}{6} = -\frac{1}{3}$$

simplify

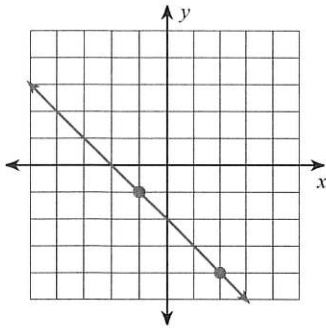
45)



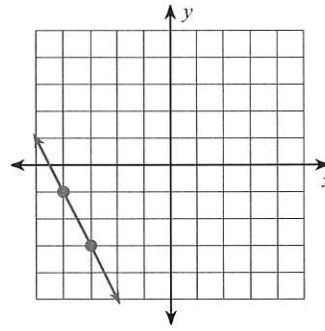
46)



47)

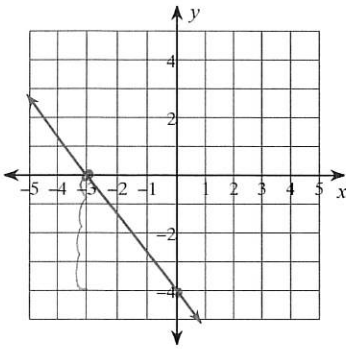


48)



Write the slope-intercept form of the equation of each line.

49)

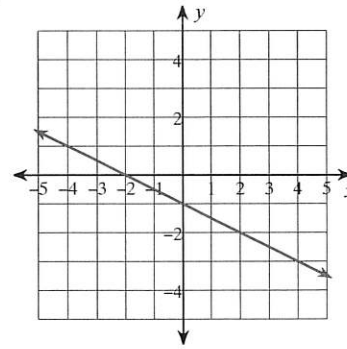


$$b = -4$$

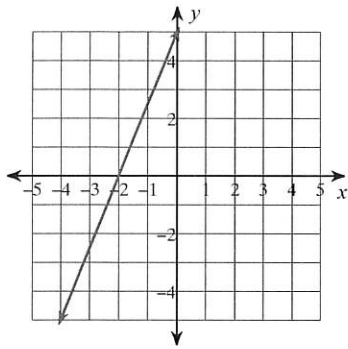
$$m = -\frac{4}{3}$$

$$y = -\frac{4}{3}x - 4$$

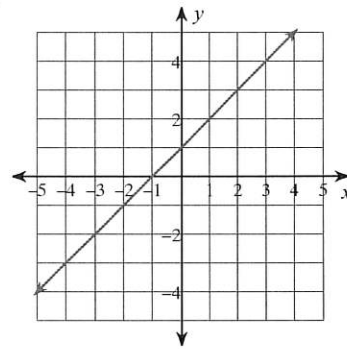
50)



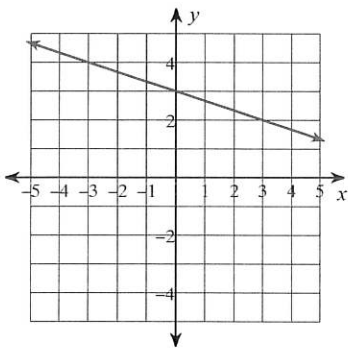
51)



52)



53)



Evaluate each using the values given.

54) $4 + r + 3 + r + p$; use $p = -10$, and $r = -10$

$$4 + (-10) + 3 + (-10) + (-10)$$

$$\textcircled{-23}$$

Grouping Symbols
 Exponents
 M/D multiplication / division
 A/S addition / subtraction

55) $|z| + z - |y|$; use $y = 5$, and $z = 1$

56) $p - ((m + q)^2 - 9)$; use $m = 10$, $p = -8$, and $q = -6$

57) $c + b - a + \frac{a}{4}$; use $a = -8$, $b = 2$, and $c = 1$

58) $-\frac{9}{3} - (a - 6c)$; use $a = -10$, and $c = -1$

① Average the x-coordinates
Average the y-coordinates

Find the midpoint of the line segment with the given endpoints.

59) $(-9, 7)$, $(9, -7)$

60) $(-3, 9)$, $(-7, 7)$

$$\left(\frac{-9 + 9}{2}, \frac{7 + (-7)}{2} \right)$$

$$\left(\frac{-18}{2}, \frac{0}{2} \right)$$

$$(-9, 0)$$

61) $(-7, 7)$, $(-9, 7)$

62) $(7, -9)$, $(7, -10)$

63) $(9, 2)$, $(-1, 3)$

Reviewing Quadratic Equations

Day 1: Factor each completely.

1) $n^2 + 10n + 16$

2) $3b^2 + 34b + 63$

3) $3k^2 - 23k + 30$

4) $10n^2 + 9n - 40$

5) $9x^2 - 64$

7) $2v^2 - 10v - 72$

Example

6) $6m^2 + 36m - 162$

6	-27	$6(m^2 + 6m - 27)$ $6(m-3)(m+9)$
	-1, 27	
	1, -27	
	3, -9	
✓	-3, 9	

9) $(k-1)(k-4) = 0$ Example

$k-1=0$ $k-4=0$ $k = \{1, 4\}$
 $k=1$ $k=4$

Solve each equation by factoring.

8) $(v-1)(v+4) = 0$

10) $p^2 + 20 = -9p$

11) $r^2 + 2 = 3r$

12) $n^2 + 12n + 32 = 0$

13) $k^2 + 3k + 2 = 0$

14) $m^2 - 2m - 35 = 0$

15) $n^2 - 2n - 3 = 0$

16) $5x^2 - 4x = 0$

17) $10b^2 + b - 3 = 0$

18) $x^2 = 25$

19) $x^2 = 6x + 7$

Day 2: Do questions 10 - 19 using the quadratic formula.

On a separate sheet of paper,

20) The quadratic formula is:

Example # 10

$p^2 + 20 = -9p$

$p^2 + 9p + 20 = 0$

$a = 1$

$b = 9$

$c = 20$

$$\frac{-9 \pm \sqrt{9^2 - 4(1)(20)}}{2(1)}$$

$$\frac{-9 \pm \sqrt{81 - 80}}{2}$$

$\frac{-9+1}{2} = -4$

$\frac{-9-1}{2} = -5$

$P = \{-4, -5\}$

$$\frac{-9 \pm \sqrt{1}}{1}$$

where $ax^2 + bx + c = 0$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$