Summer Assignment for students entering:

Honors Algebra II with Trigonometry

OR

or Honors Advanced Algebra II with Trigonometry

Please review the material in this packet in preparation for Honors Algebra II with Trigonometry or for Honors Advanced Algebra II with Trigonometry. The answers are provided for you to check your work as you work through the packet. It is expected that you have a good understanding of this material coming into Honors Algebra 2 Trigonometry or Honors Advanced Algebra II with Trigonometry, as teachers will not be doing an extensive review of previously learned material.

Have a great summer and we look forward to seeing you in the fall!

The Baker High School Math Department

Information Sheet

Quadratic Formula: $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Slope: $m = \dfrac{\Delta y}{\Delta x} = \dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{rise}{run}$

Standard form of a line: $Ax + By = C$

Standard form of a Quadratic: $Ax^2 + Bx + C = 0$

Slope-Intercept form of a line: $y = mx + b$

Point-Slope form of a line: $y - y_1 = m(x - x_1)$

Pythagorean Theorem: $a^2 + b^2 = c^2$

Right Triangle Trig Ratios: $\text{sine} = \dfrac{\text{length of the opposite side}}{\text{length of the hypotenuse}}$

$\text{cosine} = \dfrac{\text{length of adjacent side}}{\text{length of the hypotenuse}}$

$\text{tangent} = \dfrac{\text{length of the oppposite side}}{\text{length of the adjacent side}}$

Properties of Exponents:

$a^0 = 1, a \neq 0$ $\quad a^{-n} = \dfrac{1}{a^n}, a \neq 0$ $\quad (ab)^m = a^m b^m$ $\quad a^{m^n} = a^{mn}$

$a^m \bullet a^n = a^{m+n}$ $\quad \dfrac{a^m}{a^n} = a^{m-n}, a \neq 0$ $\quad \left(\dfrac{a}{b}\right)^m = \dfrac{a^m}{a^n}, a \neq 0$

Order of Operations **Worksheet #1** **NAME** _____

Period _____

Do **NOT** use a calculator when completing this worksheet. Show work whenever possible.

Evaluate each expression and leave your answer in simplest form.

1] 3(3 + 2) – 2(5– 1)

2] $27-(18-6\div 2)$

3] $7-4\bullet 2+(-5)^2$

4] $6^2-3(9-5)\div 2$

5] $7^2-6(2-(-2))^2$

6] $-8+4(2-(-1))^2+3\cdot 6$

7] $2+(2-6)^2-4\cdot 6$

8] $3\bullet 4-24\div 3$

9] $\frac{5\bullet(9-3)^2}{9}$

10] $\frac{16-4\bullet 5}{2\bullet 6+8}$

11] $\frac{3(-2)^2}{7+1}$

12] $(8-4)(12-3)-\frac{1}{2}\left[2+1(2)\right]$

13] $154-10\bullet 8+9$

14] $\frac{7}{13}-\frac{4}{13}-\frac{2}{13}$

15] $3\frac{2}{5}-2\frac{3}{5}=$

16] $\frac{3}{8}+\frac{3}{4}$

17] $\frac{1}{2}+\frac{5}{7}$

18] $\frac{3}{8}-\frac{3}{4}$

19] $1\frac{1}{3}+2\frac{1}{6}$

20] $7\frac{1}{6}-5\frac{2}{3}$

21] $6\left(\frac{3}{8}\right)$

22] $\frac{4}{5}\bullet\frac{3}{8}$

23] $\left(-\frac{3}{5}\right)\left(-\frac{5}{9}\right)\left(-\frac{3}{10}\right)$

24] $2\frac{1}{3}\bullet 2\frac{1}{4}$

25] $\frac{4}{9}\div\frac{2}{3}$

26] $1\frac{3}{10}\div\frac{4}{5}$

ANSWERS Worksheet #1: 1] 7 2] 12 3] 24 4] 30 5] –47 6] 46

7] –6 8] 4 9] 20 10] $-\frac{1}{5}$ 11] $\frac{3}{2}$ 12] 34 13] 83 14] $\frac{1}{13}$

15] $\frac{4}{5}$ 16] $\frac{9}{8}$ 17] $\frac{17}{14}$ 18] $-\frac{3}{8}$ 19] $3\frac{1}{2}$ 20] $1\frac{1}{2}$ 21] $\frac{9}{4}$ 22] $\frac{3}{10}$

23] $-\frac{1}{10}$ 24] $\frac{21}{4}$ 25] $\frac{2}{3}$ 26] $\frac{13}{8}$

Simplifying and Evaluating Expressions **Worksheet #2**

Do NOT use a calculator when completing this worksheet. Show work whenever possible.

Evaluate each expression for the given value of x and/or y.

1] $4(x-7), x=2$

2] $5x+x^2, x=6$

3] $2x-(x+4), x=18$

4] $11y^2-7y, y=-2$

5] $x^5-2y^2, x=-1, y=4$

6] $5x+(4x-y), x=3, y=2$

7] $\frac{x-y}{2(x+y)}, x=5, y=-3$

8] $4\left(\frac{y}{x}\right)-2y^3, x=-\frac{1}{3}, y=2$

9] $(3x)^2-2y^3, x=4, y=-3$

Simplify each expression and leave your answer in simplest form. Also be sure your answer is in standard form.

10] 3x + 9x

11] (3x)(-5x)

12] $-x(3x-5)$

13] $-2x(7-5x)$

14] $3-2(4x-5)$

15] $4-3(2x-1)$

16] $(2y^3+y^2-y+7)-(3y^3+y-6)$

17] -3x + 5(-2x + 1)

18] $3y(4-y)+2y^2$

19] 3(x + 2y) – 4(5x – 3y + 4)

20] $\frac{20x^2+30x-10}{-5}$

21] $2(x-5)-(2x+5)$

Simplify each expression and leave your answer in simplest form. Also be sure your answer is in standard form.

22] $4x+3xy-x-5y$

23] $x-3(5x-3)-(2-x)$

24] $\frac{1}{3}(6-9x)-\frac{3}{5}(20-10x)$

25] $\frac{1}{2}(8-4x)+\frac{1}{3}(6x-9)$

Let p represent a positive number and n represent a negative number. Determine if the given expressions will be *always positive*, *always negative* or *sometime positive* and *sometimes negative*. Be prepared to support your decision.

26] pn

27] $p+n$

28] $-np$

29] n^6

30] np^2

31] $-n^2$

32] $-p^2$

33] $p+2n$

34] $p-n$

ANSWERS: 1] -20 2] 66 3] 14 4] 58 5] -33 6] 25 7] 2 8] -40 9] 198
10] $12x$ 11] $-15x^2$ 12] $-3x^2+5x$ 13] $10x^2-14x$ 14] $-8x+13$ 15] $-6x+7$
16] $-y^3+y^2-2y+13$ 17] $-13x+5$ 18] $-y^2+12y$ 19] $-17x+18y-16$ 20] $-4x^2-6x+2$
21] -15 22] $3x+3xy-5y$ 23] $-13x+7$ 24] $3x-10$ 25] 1 26] always negative
27] sometimes positive/sometimes negative 28] always positive 29] always positive 30] always negative 31] always negative 32] always negative
33] sometimes positive/sometimes negative 34] always positive

Solving Linear Equations **Worksheet #3**

Solve the following equations for x. **You must show all algebraic steps.** Please also include a **CHECK** of your solution. Do **not** use a calculator when completing the worksheet.

1] $5x-11=24$

2] $17-3x=23$

3] $3x-8=5x+22$

4] $-y-18=3(y-5)$

5] $7x-(12+x)=228$

6] $\frac{2}{3}x-7=21$

7] $\frac{3}{4}x-\frac{10}{3}=5+\frac{x}{2}$

8] $9(3x-2)=\frac{5}{2}x+3$

9] $14x-(6x+4)=3x+5(x-1)+1$

10] $6.2x+11.8=3.8(x+1)$

11] $\frac{1}{2}(x-5)+\frac{2}{5}x=2-\frac{3}{4}x$

12] $4-2(x-11)=3(x+4)-6$

13] $\frac{1}{4}(4-\mathrm{x})=10+2\mathrm{x}$

14] $\frac{1}{5}\mathrm{x}=7-\frac{4}{5}\mathrm{x}$

15] $\frac{1}{4}\mathrm{x}+12=\frac{-1}{4}\mathrm{x}$

Solve the following equations for x. **You must show all algebraic steps.** Please also include a **CHECK** of your solution. Do **not** use a calculator when completing the worksheet.

13] $\frac{1}{4}(4-x)=10+2x$

14] $\frac{1}{5}x=7-\frac{4}{5}x$

15] $\frac{1}{4}x+12=\frac{-1}{4}x$

16] $\frac{1}{2}x-8=14+\frac{1}{2}x$

17] $\frac{2}{3}(3x+18)=5x-9$

18] $2(x-1)=\frac{3}{5}(10+5x)$

19] $-x+16=21-3(x+5)$

20] $3n-(15+n)=59$

21] $\frac{6-5t}{4}=3t+1$

22] $\frac{1}{2}b+\frac{4}{5}=b-\frac{3}{10}$

23] $2(p-2p+3p-4)=4(p-3)$

24] $\frac{3}{4}x+6=81$

ANSWERS: 1) 7 2) –2 3) –15 4) $-\frac{3}{4}$ 5) 40 6) 42 7) $\frac{100}{3}$ 8) $\frac{6}{7}$ 9) $\Re$ (all real numbers)
10) $-\frac{10}{3}$ 11) $\frac{65}{33}$ 12) 4 13) –4 14) 7 15)–24 16) No Solution $\varnothing$ 17) 7 18) –8 19) –5
20) 37 21) $\frac{2}{17}$ 22) $\frac{11}{5}$ 23) $\varnothing$ (no solution) 24) 100

Solving Literal Equations **Worksheet #4**

For each equation below,

a) Solve each equation for y in terms of x, showing your work.

b) Then evaluate when x = 2.

1] $4x+3y=8$

2] $-2x=3y-5$

3] $2xy-5x=16$

4] $-\frac{2}{3}x+\frac{1}{5}y=1$

5] $3(2x-y)=5x+7$

6] $\frac{1}{4}y+3x-6=y+21$

Solve each equation for the indicated variable.

7] $p=2\ell+2w$ for ℓ

8] $LA=2\pi rh$ for h

9] $V=\frac{1}{3}(\ell \bullet w \bullet h)$ for w

10] $C=\frac{5}{9}(F-32)$ for F

11] $A=\frac{1}{2}h(b_1+b_2)$ for b_1

12] $PV=nrt$ for T

Solve each equation for the indicated variable.

13] $h = \frac{1}{2}gt^2$ for g 14] $d = \sqrt{\ell^2 + w^2 + h^2}$ for ℓ 15] $I = P(1+r)^t$ for P

Answers: 1) $y = \frac{8-4x}{3}, y = 0$ 2) $y = \frac{-2x+5}{3}, y = \frac{1}{3}$ 3) $y = \frac{16+5x}{2x}, y = \frac{13}{2}$
4) $y = 5(1+\frac{2}{3}x), y = \frac{35}{3}$ 5) $y = \frac{-x+7}{-3}, y = -\frac{5}{3}$ 6) $y = 4x - 36, y = -28$ 7) $\ell = \frac{p-2w}{2}$
8) $h = \frac{LA}{2\pi r}$ 9) $w = \frac{3V}{\ell \bullet h}$ 10) $F = \frac{9}{5}C + 32$ 11) $b_1 = \frac{2A}{h} - b_2$ 12) $T = \frac{PV}{nr}$ 13) $g = \frac{2h}{t^2}$
14) $\ell = \sqrt{d^2 - w^2 - h^2}$ 15) $P = \frac{I}{(1+r)^t}$

Linear Functions **Worksheet #5**

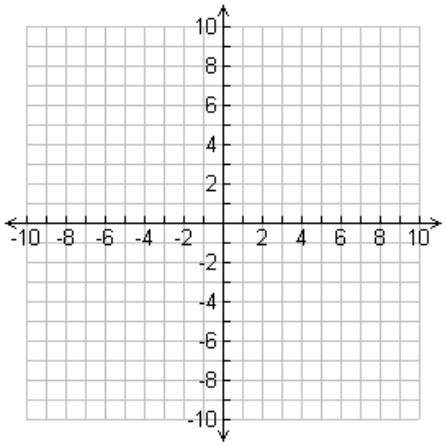
You should **NOT** use a calculator to complete this worksheet. Please **DO** use a straightedge when graphing.

Find the slope of the line passing through the given points. Include your work.

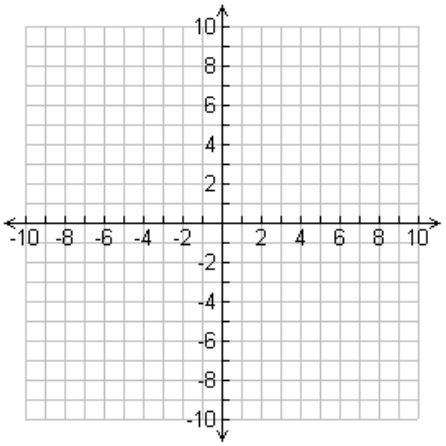
1] $(-2,5),\ (-8,1)$ **2]** $(-1,-4),\ (2,2)$ **3]** $(-3,8),\ (-3,4)$

Graph the functions.

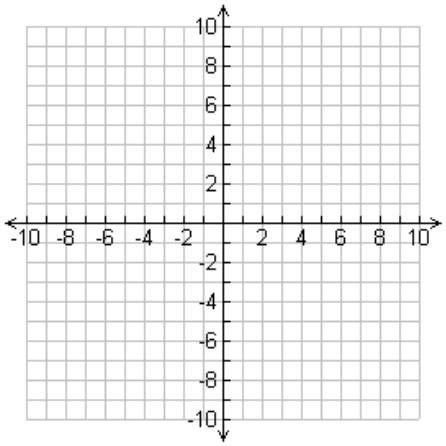
4] $y=2x-3$



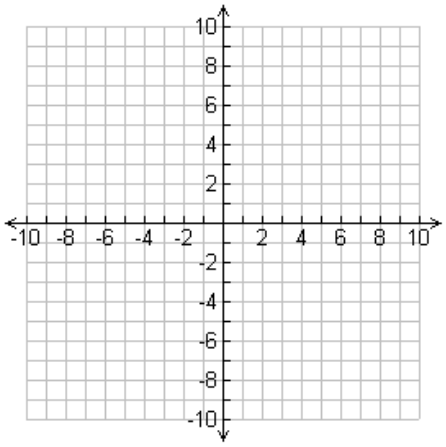
6] $y=-x$



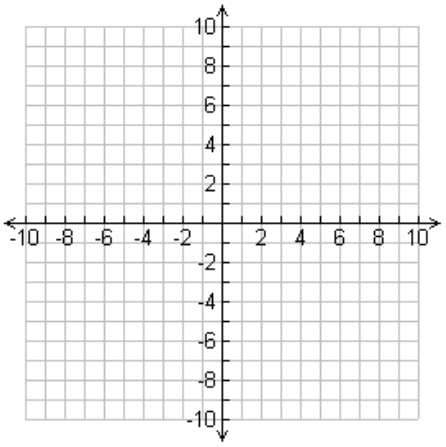
7] $y=\frac{3}{2}x+4$



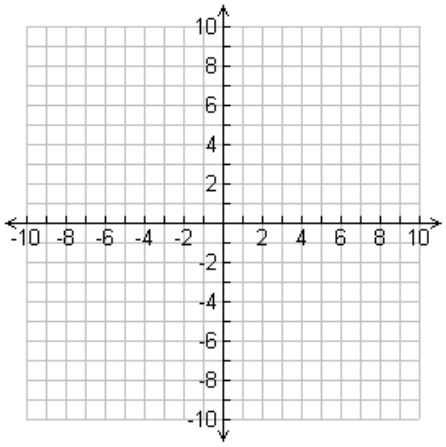
8] $y=4$



9] $x=-4$

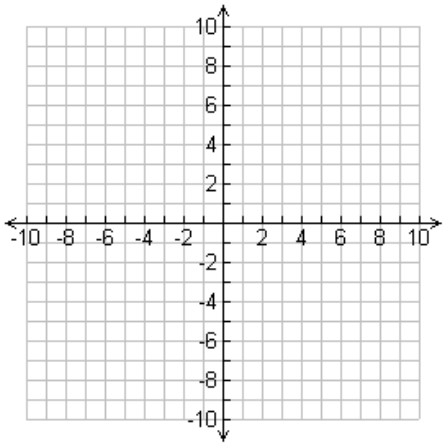


10] $2x+4y=8$

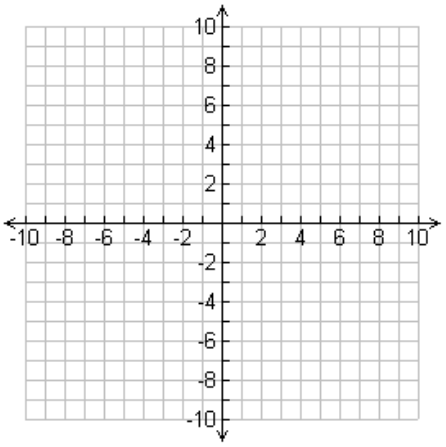


Graph the functions.

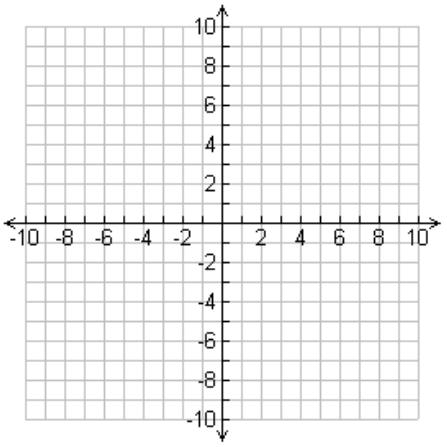
10] $2x - y = -4$



11] $y = -x - 1$

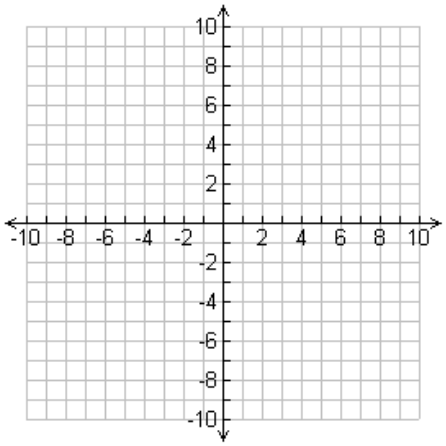


12] $-3x + 4y = 12$

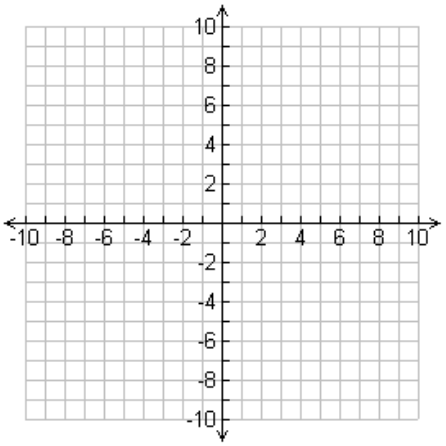


Graph the inequalities.

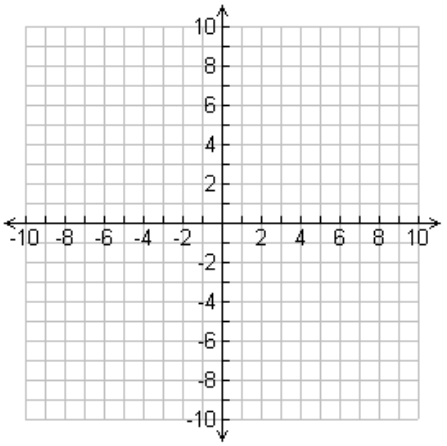
13] $y \le -4$



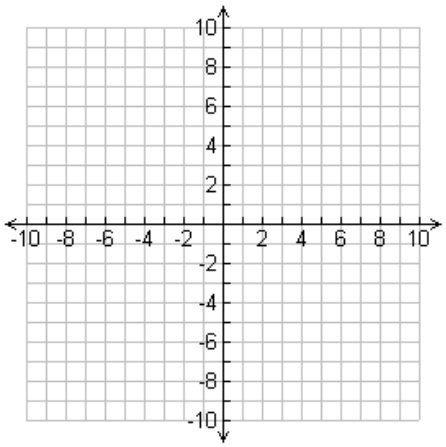
14] $y \le -x - 1$



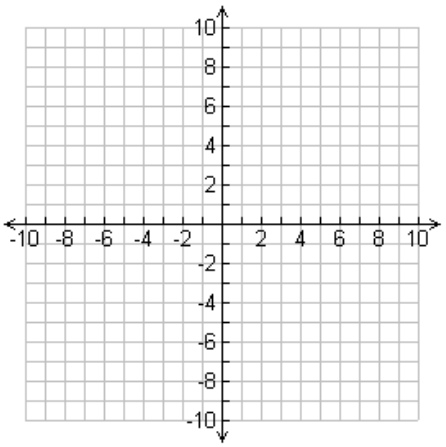
15] $x < -3$



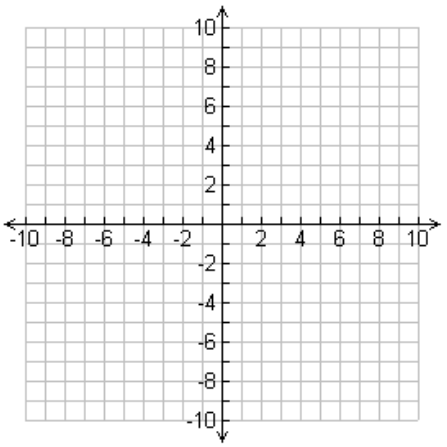
16] $y \ge -\frac{2}{3}x$



17] $4x - 2y > 12$



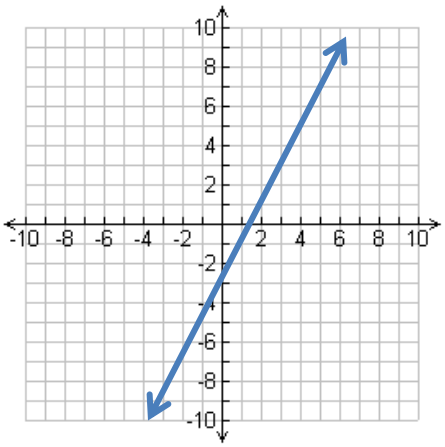
18] $-3x + 5y \le 15$



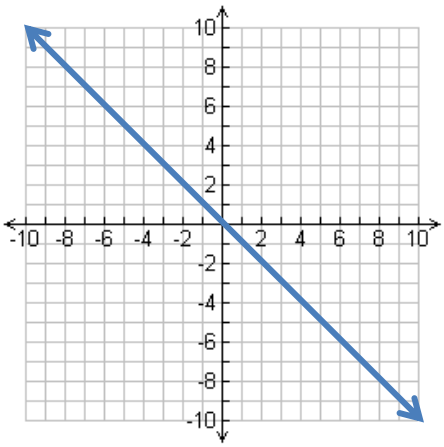
ANSWERS:

1] $m=\frac{2}{3}$ 2] $m=2$ 3] slope is undefined

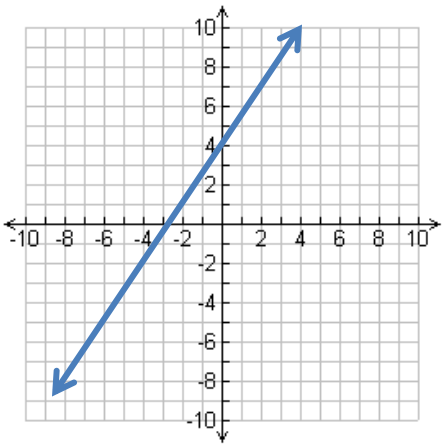
4] $y=2x-3$



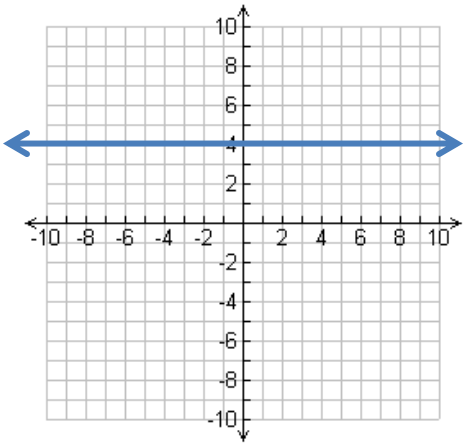
6] $y=-x$



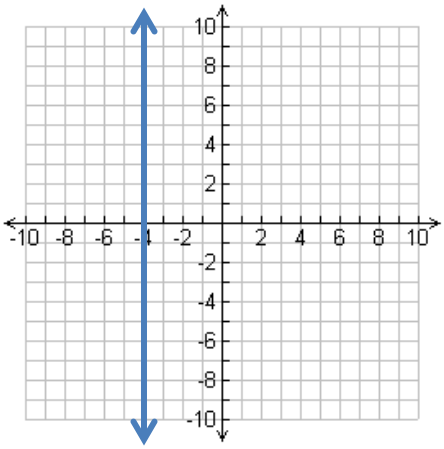
7] $y=\frac{3}{2}x+4$



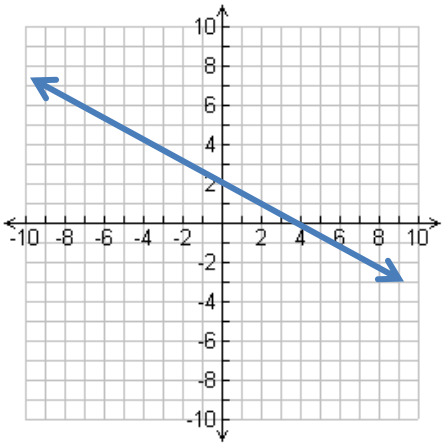
8] $y=4$



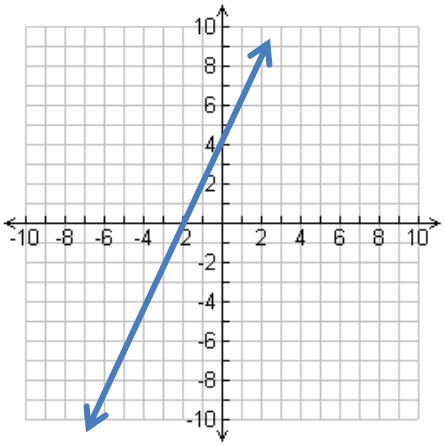
9] $x=-4$



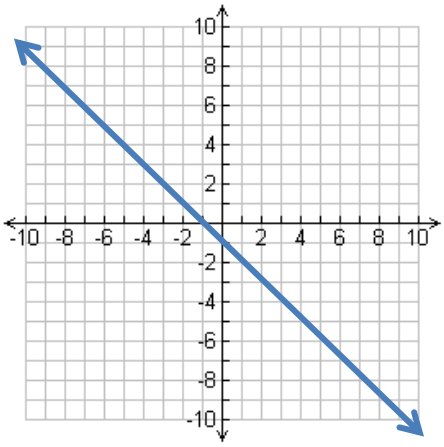
10] $2x+4y=8$



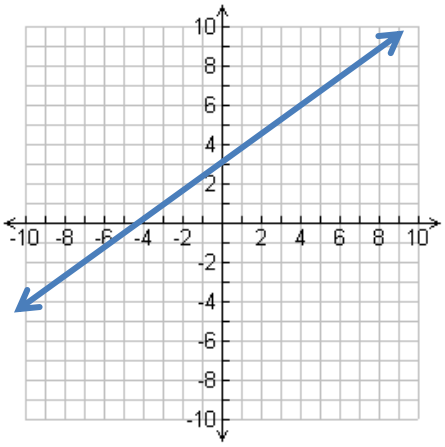
10] $2x-y=-4$



11] $y=-x-1$

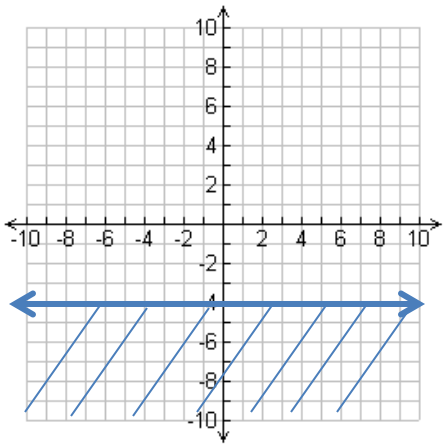


12] $-3x+4y=12$

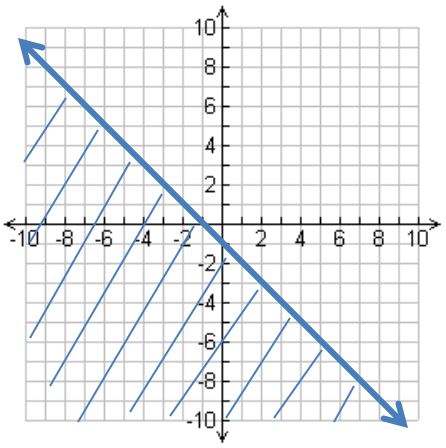


Graph the inequalities.

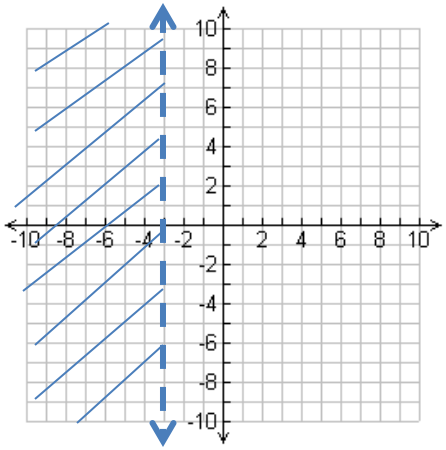
13] $y \le -4$



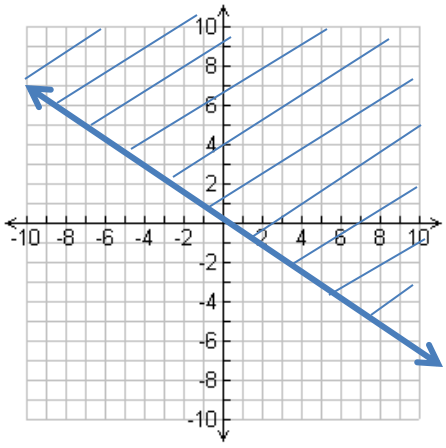
14] $y \le -x - 1$



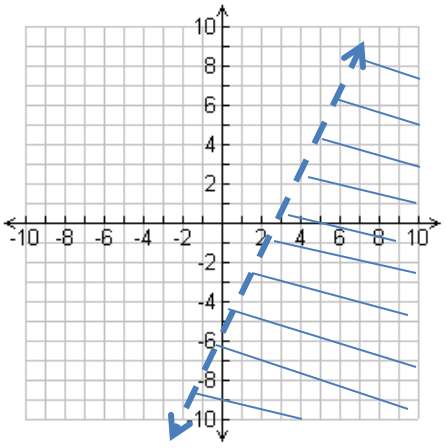
15] $x < -3$



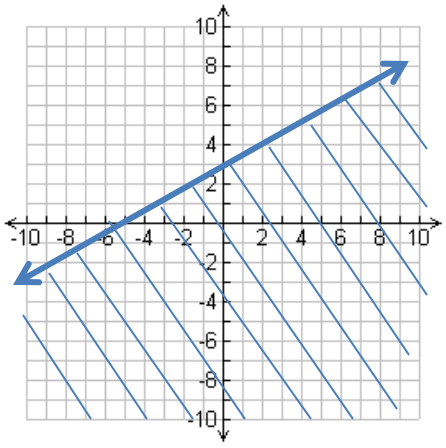
16] $y \ge -\frac{2}{3}x$



17] $4x - 2y > 12$



18] $-3x + 5y \le 15$

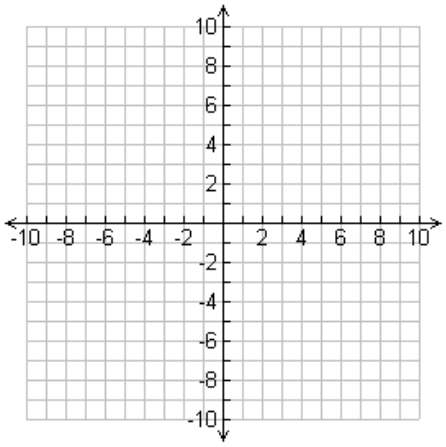


Systems of Equations **Worksheet #6**

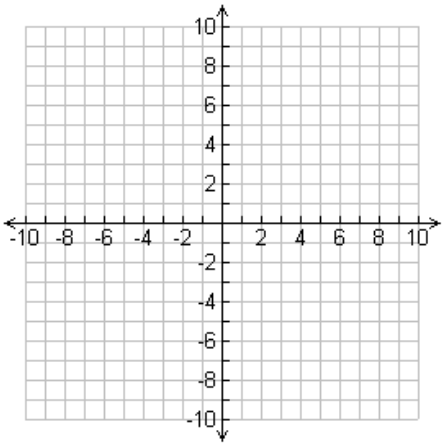
You should **NOT** use a calculator to complete this worksheet. Please **DO** use a straightedge when graphing.

Solve each system of equations by graphing.

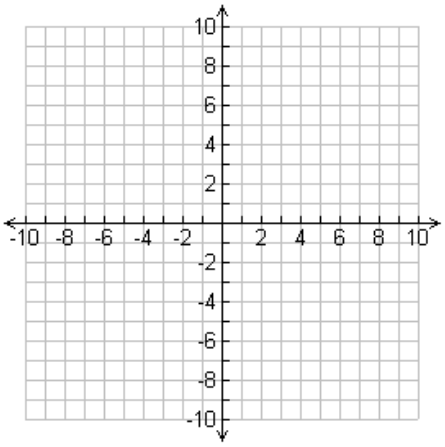
4] $\begin{cases} y = x + 3 \\ y = -\frac{1}{2}x + 6 \end{cases}$



6] $\begin{cases} 4x + 3y = 12 \\ y = -\frac{4}{3}x + 4 \end{cases}$



7] $\begin{cases} 4x - 2y = 12 \\ y = 2x + 6 \end{cases}$



Solve the following systems of equations using the substitution method or the linear combination method. Remember to write your solution as an ordered pair. CHECK your solution in both original equations.

4] $\begin{cases} y = x + 4 \\ 3x + y = 16 \end{cases}$

5] $\begin{cases} 3x + y = 1 \\ x - y = 7 \end{cases}$

6] $\begin{cases} 3x + 5y = 17 \\ 2x + 3y = 11 \end{cases}$

7] $\begin{cases} 6x - 7y = 12 \\ 5x - 4y = 10 \end{cases}$

8] $\begin{cases} 4x-3+y-10=29 \\ 8x-5y-2x=50 \end{cases}$

9] $\begin{cases} 8x-4y=4 \\ 4x-2y=-3 \end{cases}$

10] $\begin{cases} 7x+10y=-13 \\ 3x-2y=7 \end{cases}$

11] $\begin{cases} 6x-2y=12 \\ 3x-y=6 \end{cases}$

12] $\begin{cases} 2x+9y=39 \\ 5x-y=-20 \end{cases}$

13] $\begin{cases} 4x+5y=12 \\ 6x-3y=-3 \end{cases}$

ANSWERS: 1] $(2,5)$ 2] infinitely many solutions 3] no solution 4] $(3,7)$ 5] $(2,-5)$
6] $(4,1)$ 7] $(2,0)$ 8] $(10,2)$ 9] no solution 10] $(1,-2)$ 11] infinitely many solutions
12] $(-3,5)$ 13] $\left(\frac{1}{2},2\right)$

Multiplying Expressions **Worksheet #7**

You should **NOT** use a calculator to complete this worksheet.

Find each product. All answers should be in standard form.

1] $-x(6x-1)$

2] $2y(y-3)$

3] $3x(x^2-4x+3)$

4] $(y+3)(y+2)$

5] $(c-2)(c-4)$

6] $(x+6)(x+9)$

7] $(x-4)(x-7)$

8] $(x-4)(x+9)$

9] $(x-8)(x+7)$

10] $(2x-3)(2x+3)$

11] $(x-7)(x+7)$

12] $(3x-5)(3x+5)$

13] $(x-4)(x+14)$

14] $(2x-3)(x+5)$

15] $(4x+5)(x-9)$

16] $(5d+3)(4d+7)$

17] $(4q-7)(3q+8)$

18] $(2z+7)(5z+3)$

19] $(7x+4)(7x-4)$

20] $(w-5)^2$

21] $(x-9)^2$

Find each product. Your answers need to be in standard form.

22] $(2t+3)^2$

23] $(3x-5)(x+4)$

24] $(4x+5)(x-7)$

25] $(3b-1)^2$

26] $(9w+8)^2$

27] $(6x-5)(6x+5)$

28] $(5t+6)^2$

29] $(n-10)^2$

30] $(3x+2)(3x-2)$

31] $(4a+3)^2$

32] $(2w+3)(2w-3)$

33] $(3x-5)^2$

34] $4x(x+6)$

35] $(x-4)(x-3)$

36] $(x+8)(x+9)$

37] $(x+7)(x-7)$

38] $(x-10)(x-10)$

39] $(x+11)^2$

40] $(3x-1)(4x+3)$

41] $(-5x+4)(2x-9)$

42] $(7x+y)(x-3y)$

ANSWERS: 1] $-6x^2+x$ 2] $2y^2-6y$ 3] $3x^3-4x^2+9x$ 4] y^2+5y+6
5] c^2-6c+8 6] $x^2+15x+54$ 7] $x^2-11x+28$ 8] $x^2+5x-36$ 9] x^2-x-56
10] $4x^2-9$ 11] x^2-49 12] $9x^2-25$ 13] $x^2+10x-56$ 14] $2x^2+7x-15$ 15] $4x^2-31x-45$
16] $20d^2+47d+21$ 17] $12q^2+11q-56$ 18] $10z^2+41z+21$ 19] $49x^2-16$ 20] $w^2-10w+25$
21] $x^2-18x+81$ 22] $4t^2+12t+9$ 23] $3x^2+7x-20$ 24] $4x^2-23x-35$ 25] $9b^2-6b+1$
26] $81w^2+144w+64$ 27] $36x^2-25$ 28] $25t^2+60t+36$ 29] $n^2-20n+100$ 30] $9x^2-4$
31] $16a^2+24a+9$ 32] $4w^2-9$ 33] $9x^2-30x+25$ 34] $4x^2+24x$ 35] $x^2-7x+12$
36] $x^2+17x+72$ 37] x^2-49 38] $x^2-20x+100$ 39] $x^2+22x+121$ 40] $12x^2+5x-3$
41] $-10x^2+53x-36$ 42] $7x^2-20xy-3y^2$

Factoring and Solving Quadratic Equations **Worksheet #8**

You should NOT use a calculator to complete this worksheet.

Factor each quadratic expression. Remember to check for common factors. If the expression cannot be factored, so state.

1] $x^2 - 9x + 20$

2] $9x^2 + 9x$

3] $x^2 + 16x + 64$

4] $x^2 - 2x - 15$

5] $x^2 - 81$

6] $x^2 - x - 56$

7] $x^2 - 13x + 36$

8] $x^2 - 18x + 81$

9] $x^2 + 9x - 36$

10] $x^2 + 3x - 54$

11] $x^2 + x - 42$

12] $-t^2 + 17t - 16$

13] $6x^2 - 11x + 4$

14] $x^2 + 25$

15] $5x^2 + 10x$

16] $10x^2 + 19x + 6$

17] $6x^2 - 15x$

18] $x^2 + 8x + 16$

19] $4x^2 - 21x - 18$

20] $10x^2 + 7x - 12$

21] $50x^2 - 350x + 300$

Factor each quadratic expression. Remember to check for common factors.

22] $3x^2 - 31x + 36$

23] $4x^2 + 20x + 25$

24] $4x^2 - 25$

Solve the equation by factoring. Include your algebra and be sure your solutions include statements "x = ." Checking your solutions is advised.

25] $x^2 - 36 = 0$

26] $x^2 + 3x - 70 = 0$

27] $x^2 - 8x = -15$

28] $3x^2 = -30x$

29] $x^2 + 19x = -18$

30] $x^2 + 8x = 20$

31] $y^2 - 7y = 18$

32] $2x^2 + 7x + 3 = 0$

33] $20x^2 - 5x = 0$

34] $6x^2 + 19x + 10 = 0$

35] $-2x + x^2 = 48$

36] $8x^2 + 2x = 3$

37] $x^2 - 14x + 40 = 0$ **38]** $x^2 + 15x - 100 = 0$ **39]** $x^2 - 22 = 9x$

40] $x^2 - 121 = 0$ **41]** $9x^2 - 49 = 0$ **42]** $x^2 + 12x + 36 = 0$

43] $3x^2 + 14x - 5 = 0$ **44]** $6x^2 - 5x - 6 = 0$ **45]** $x^3 + 8x^2 - 48x = 0$

Use the quadratic formula or completing the square to solve the following equations.

46] $x^2 - 4x + 2 = 0$ **47]** $x^2 - 5x - 7 = 0$ **48]** $x^2 + 5x + 7 = 0$

More factoring practice.

49] $3x^2 + 15x$ **50]** $-4x^2 - 20x$ **51]** $5x^3 + 35x^2$

52] $x^2 - 9$ **53]** $4x^2 - 25$ **54]** $x^2 + 36$

55] $x^2 + 7x + 12$ **56]** $x^2 - 12x + 20$ **57]** $x^2 + 14x - 32$

58] $x^2 - x - 42$ **59]** $x^2 + 2x - 63$ **60]** $x^2 + x - 56$

61] $2x^2 - 11x - 21$ **62]** $12x^2 + 5x - 2$ **63]** $6x^2 - x - 15$

64] $x^3 + 6x^2 + 5x$ **65]** $x^3 - 11x^2 + 30x$ **66]** $2x^4 + 9x^3 - 5x^2$

ANSWERS

1] $(x-5)(x-4)$ **2]** $9x(x+1)$ **3]** $(x+8)^2$ **4]** $(x-5)(x+3)$ **5]** $(x-9)(x+9)$ **6]** $(x-8)(x+7)$

7] $(x-9)(x-4)$ **8]** $(x-9)^2$ **9]** $(x+12)(x-3)$ **10]** $(x+9)(x-6)$ **11]** $(x+7)(x-6)$

12] $-1(t-16)(t-1)$ **13]** $(3x-4)(2x-1)$ **14] cannot be factored** **15]** $5x(x+2)$ **16]** $(2x+3)(5x+2)$

17] $3x(2x-5)$ **18]** $(x+4)^2$ **19]** $(4x+3)(x-6)$ **20]** $(2x+3)(5x-4)$ **21]** $50(x-6)(x-1)$

22] $(3x-4)(x-9)$ **23]** $(2x+5)^2$ **24]** $(2x-5)(2x+5)$ **25]** $x=6;\ x=-6$ **26]** $x=7;\ x=-10$

27] $x=3;\ x=5$ **28]** $x=0;\ x=-10$ **29]** $x=-18;\ x=-1$ **30]** $x=2;\ x=-10$ **31]** $x=9;\ x=-2$

32] $x=-3;\ x=-\frac{1}{2}$ **33]** $x=0;\ x=\frac{1}{4}$ **34]** $x=-\frac{5}{2};\ x=-\frac{2}{3}$ **35]** $x=8;\ x=-6$ **36]** $x=-\frac{3}{4};\ x=\frac{1}{2}$

37] $x=4,10$ **38]** $x=-20,5$ **39]** $x=-2,11$ **40]** $x=\pm 11$ **41]** $x=\pm\frac{7}{3}$ **42]** $x=-6$ **43]** $x=-5,\frac{1}{3}$

44] $x=-\frac{2}{3},\frac{3}{2}$ **45]** $x=-12,0,4$ **46]** $x=2\pm\sqrt{2}$ **47]** $\frac{5\pm\sqrt{53}}{2}$ **48]** $\varnothing$ **49]** $3x(x+5)$

50] $-4x(x+5)$ **51]** $5x^2(x+7)$ **52]** $(x+3)(x-3)$ **53]** $(2x-5)(2x+5)$ **54]** x^2+36

55] $(x+3)(x+4)$ **56]** $(x-10)(x-2)$ **57]** $(x+16)(x-2)$ **58]** $(x-7)(x+6)$ **59]** $(x+9)(x-7)$

60] $(x+8)(x-7)$ **61]** $(2x+3)(x-7)$ **62]** $(4x-1)(3x+2)$ **63]** $(3x-5)(2x+3)$

64] $x(x+5)(x+1)$ **65]** $x(x-6)(x-5)$ **66]** $x^2(2x-1)(x+5)$

More Simplification **Worksheet #9**

You should NOT use a calculator to complete this worksheet.

Simplify each expression. Your answers cannot include negative exponents. If an expression cannot be simplified, state "simplified now."

1] $c^4 \cdot c^2$

2] $\left(4y^2\right)\left(-y^6\right)$

3] $\left(n^3\right)^4$

4] $\left(-2a\right)^2$

5] $\left(-2x^3\right)^3$

6] $\frac{n^8}{n^8}$

7] $\frac{-72x}{-9x^3}$

8] $\frac{-10n^3}{20n^8}$

9] $\left(\frac{x^3}{y^5}\right)^2$

10] $\left(\frac{-2x^4}{c}\right)^5$

11] $\left(\frac{-3a^3}{15a^4}\right)$

12] $5m^0$

13] $\left(7a^4\right)\left(-a^5\right)$

14] $\frac{\left(2x^6\right)\left(-5x\right)}{\left(10x\right)^2}$

15] $\frac{1}{n^{-5}}$

Simplify each expression. Your answers cannot include negative exponents. If an expression cannot be simplified, state "simplified now."

16] $\left(a^5\right)^2$

17] $-x^3 \cdot x^5 \cdot x$

18] $\dfrac{\left(4x^4\right)\left(-x^5\right)}{\left(2x\right)^2}$

19] $x^5 \cdot x^{-9}$

20] $\dfrac{a^2+3}{a}$

21] $\dfrac{3a}{6a^2}$

22] $\dfrac{9x}{-3x}$

23] $\dfrac{a^3}{b^4} \cdot \dfrac{-b^4}{a^3}$

24] $\dfrac{n^2+5n}{n^2+10}$

25] $\dfrac{5a+7a}{6}$

26] $\dfrac{5x-10}{5}$

27] $\dfrac{3x}{-6x^2} \cdot 4x$

28] $\left(7^3\right)\left(7^{11}\right)$

29] x^2x^6

30] $\left(6x^4y^5\right)\left(7x^5y\right)$

31] $\dfrac{x^7}{x^2}$

32] $\dfrac{30x^9y^5}{-6x^2y}$

33] $\dfrac{x^{-5}y^3m^2}{x^2y^{-8}m^6}$

34] $\left(3^4\right)^5$

35] $\left(x^{-2}\right)^3$

36] $\left(-2x^5y\right)^3$

37] $\left(\frac{2x^3}{3y^4}\right)^2$ **38]** $\left(\frac{6yx^6}{3y^4x^2}\right)^4$ **39]** $\left(\frac{2x^2}{m^3}\right)^{-2}$

40] $\left(-2x^5y^3\right)^4$ **41]** $\frac{(a+b)^3}{(a+b)^7}$ **42]** $\left(-2x^{-2}\right)^{-2}$

43] $\left(3\times10^5\right)^3$ **44]** $\left(\frac{7x^5y^2}{4x^2y^5}\right)^0$ **45]** $\left(\frac{a^{-\frac{1}{2}}}{a^{-\frac{2}{3}}}\right)^6$

ANSWERS: 1] c^6 2] $-4y^8$ 3] n^{12} 4] $4a^2$ 5] $-8x^9$ 6] 1 7] $\frac{8}{x^2}$ 8] $-\frac{1}{2n^5}$ 9] $\frac{x^6}{y^{10}}$ 10] $\frac{-32x^{20}}{c^5}$

11] $-\frac{1}{5a}$ 12] 5 13] $-7a^9$ 14] $-\frac{x^5}{10}$ 15] n^5 16] a^{10} 17] $-x^9$ 18] $-x^7$ 19] $\frac{1}{x^4}$

20] simplified now 21] $\frac{1}{2a}$ 22] -3 23] -1 24] simplified now 25] $2a$ 26] $x-2$ 27] -2 28] 7^{14}

29] x^8 30] $42x^9y^6$ 31] x^5 32] $-5x^7y^4$ 33] $\frac{y^{11}}{x^7m^4}$ 34] 3^{20} 35] $\frac{1}{x^6}$ 36] $-8x^{15}y^3$ 37] $\frac{4x^2}{9y^8}$

38] $\frac{16x^{16}}{y^{12}}$ 39] $\frac{m^6}{4x^4}$ 40] $16x^{20}y^{12}$ 41] $\frac{1}{(a+b)^4}$ 42] $\frac{x^4}{4}$ 43] 2.7×10^{16} 44] 1 45] a

Simplifying Radical Expressions **Worksheet #10**

You should NOT use a calculator to complete this worksheet.
Simplify each expression, that is, write it in simple radical form. If an expression cannot be simplified, state "simplified now."

1] $\sqrt{108}$ **2]** $\sqrt{72}$ **3]** $\sqrt{147}$

4] $\sqrt{80}$ **5]** $\sqrt{18}$ **6]** $\sqrt{112}$

7] $\sqrt{125}$ **8]** $\sqrt{50}$ **9]** $\sqrt{20}$

10] $\sqrt{300}$ **11]** $\sqrt{3}\cdot\sqrt{12}$ **12]** $\sqrt{15}\cdot\sqrt{5}$

13] $\sqrt{15}\cdot\sqrt{10}$ **14]** $\sqrt{a}\cdot\sqrt{a}$ **15]** $\sqrt{14}\cdot\sqrt{21}$

16] $2\sqrt{10}\cdot 3\sqrt{5}$ **17]** $-3\sqrt{33}\cdot\sqrt{11}$ **18]** $4\sqrt{2}\cdot 6\sqrt{8}$

19] $\sqrt{\frac{16}{25}}$ **20]** $\sqrt{\frac{1}{9}}$ **21]** $\sqrt{\frac{20}{49}}$

22] $\sqrt{\frac{56}{36}}$ **23]** $\sqrt{\frac{5}{36}}$ **24]** $\sqrt{\frac{25}{3}}$

Simplify each expression, that is, write it in simple radical form. If an expression cannot be simplified, state "simplified now."

25] $\sqrt{\frac{12}{5}}$

26] $\sqrt{\frac{2}{7}}$

27] $\sqrt{\frac{3}{5}}$

28] $\sqrt{3^2+4^2}$

29] $\sqrt{75}+\sqrt{50}$

30] $\sqrt{36+64}$

31] $\sqrt{6}+\sqrt{10}$

32] $\sqrt{8}-\sqrt{18}$

33] $\sqrt{100}-\sqrt{64}$

34] $\sqrt{8}$

35] $\sqrt{27}$

36] $\sqrt{40}$

37] $4\sqrt{45}+2\sqrt{20}$

38] $-5\sqrt{8}+\sqrt{32}$

39] $\sqrt{50}-\sqrt{16}+\sqrt{72}$

40] $\sqrt{6}\bullet\sqrt{15}$

41] $\sqrt{30}\bullet\sqrt{55}$

42] $4\sqrt{3}\bullet 5\sqrt{27}$

43] $\frac{\sqrt{36}}{\sqrt{25}}$

44] $\frac{\sqrt{75}}{\sqrt{25}}$

45] $\frac{\sqrt{44}}{\sqrt{99}}$

Answers should be rationalized, no radicals in the denominator.

46] $\frac{5}{\sqrt{3}}$ **47]** $\frac{\sqrt{7}}{\sqrt{2}}$ **48]** $\frac{\sqrt{6}}{\sqrt{12}}$

49] $\frac{4}{1+\sqrt{3}}$ **50]** $\frac{8}{2-\sqrt{2}}$ **51]** $\frac{10}{5-\sqrt{5}}$

ANSWERS: **1]** $6\sqrt{3}$ **2]** $6\sqrt{2}$ **3]** $7\sqrt{3}$ **4]** $4\sqrt{5}$ **5]** $3\sqrt{2}$ **6]** $4\sqrt{7}$ **7]** $5\sqrt{5}$

8] $5\sqrt{2}$ **9]** $2\sqrt{5}$ **10]** $10\sqrt{3}$ **11]** 6 **12]** $5\sqrt{3}$ **13]** $5\sqrt{6}$ **14]** a **15]** $7\sqrt{6}$

16] $30\sqrt{2}$ **17]** $-33\sqrt{3}$ **18]** 96 **19]** $\frac{4}{5}$ **20]** $\frac{1}{3}$ **21]** $\frac{2\sqrt{5}}{7}$ **22]** $\frac{\sqrt{7}}{3}$ **23]** $\frac{\sqrt{5}}{6}$

24] $\frac{5\sqrt{3}}{3}$ **25]** $\frac{2\sqrt{15}}{5}$ **26]** $\frac{\sqrt{14}}{7}$ **27]** $\frac{\sqrt{15}}{5}$ **28]** 5 **29]** $5\sqrt{3}+5\sqrt{2}$ **30]** 10

31] simplified now **32]** $-\sqrt{2}$ **33]** 2 **34]** $2\sqrt{2}$ **35]** $3\sqrt{3}$ **36]** $2\sqrt{10}$ **37]** $16\sqrt{5}$

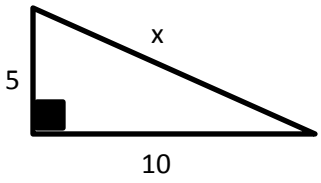
38] $-6\sqrt{2}$ **39]** $11\sqrt{2}-4$ **40]** $3\sqrt{10}$ **41]** $5\sqrt{66}$ **42]** 180 **43]** $\frac{6}{5}$ **44]** $\sqrt{3}$ **45]** $\frac{2}{3}$ **46]** $\frac{5\sqrt{3}}{3}$

47] $\frac{\sqrt{14}}{2}$ **48]** $\frac{\sqrt{2}}{2}$ **49]** $-2+2\sqrt{3}$ **50]** $8+4\sqrt{2}$ **51]** $\frac{5+\sqrt{5}}{2}$

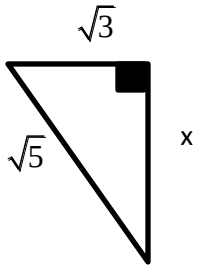
Pythagorean Theorem and Right Triangle Trig **Worksheet #11**

Solve for x in each of the following right triangles. Find exact answers.

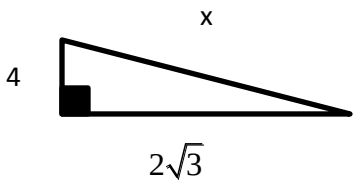
1]



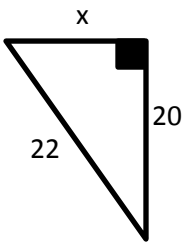
2]



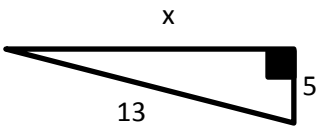
3]



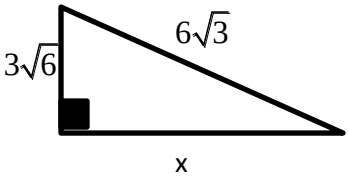
4]



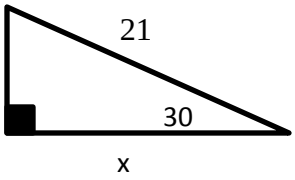
5]



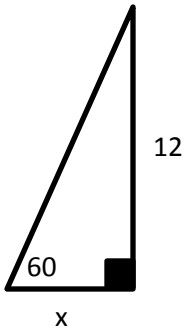
6]



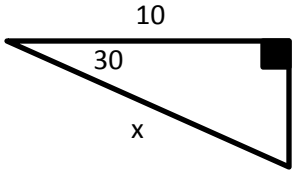
7]



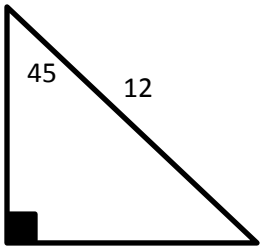
8]



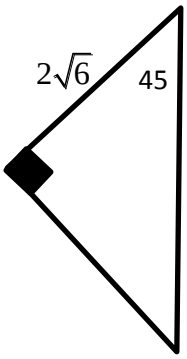
9]



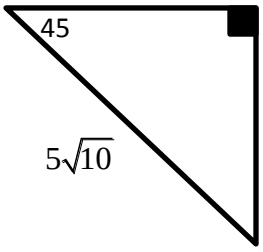
10]



11]

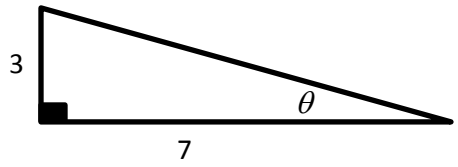


12]

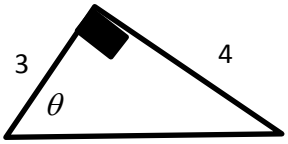


Using the given right triangle and without a calculator find the following trig ratios.

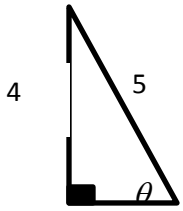
13] Solve for $\sin\theta$**.**



14] Solve for $\tan\theta$**.**

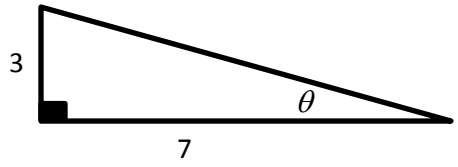


15] Solve for $\cos\theta$**.**

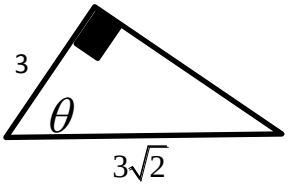


Using the given right triangle and a calculator find the measure of θ **to the nearest hundredth of a degree.**

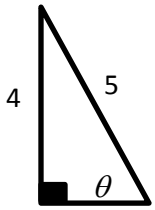
16]



17]



18]



ANSWERS:

1] $5\sqrt{5}$ **2]** $\sqrt{2}$ **3]** $2\sqrt{7}$ **4]** $2\sqrt{21}$ **5]** 12 **6]** $3\sqrt{6}$ **7]** $\frac{21\sqrt{3}}{2}$ **8]** $4\sqrt{3}$ **9]** $\frac{10\sqrt{3}}{3}$ **10]** $6\sqrt{2}$

11] $4\sqrt{3}$ **12]** $5\sqrt{5}$ **13]** $\frac{3\sqrt{58}}{58}$ **14]** $\sqrt{2}$ **15]** $\frac{3}{5}$ **16]** $23.20°$ **17]** $45°$ **18]** $53.13°$