GREATER ATLANTA CHRISTIAN SCHOOL

SUMMER ASSIGNMENT FOR STUDENTS
ENTERING HONORS ALGEBRA 2

Please have the following worksheets completed and ready to be handed in on the **first day of class**. Make sure you show your work where appropriate. You will not be given credit if you don't show work on problems that require it. Please neatly organize your work and using notebook paper when there is not enough room to show all of your work. It is expected that you have a good understanding of this material coming into Honors Algebra 2 / 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!

- Mr. Washington mwashington@greateratlantachristian.org

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

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

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

5] $7^2-6\left(2-(-2)\right)^2$

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

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

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

9] $\dfrac{5\cdot(9-3)^2}{9}$

10] $\dfrac{16-4\cdot 5}{2\cdot 6+8}$

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

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

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

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

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

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

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

A. Simplifying Polynomial Expressions

I. Combining Like Terms

- You can add or subtract terms that are considered "like", or terms that have the same variable(s) with the same exponent(s).

Ex. 1: $5x - 7y + 10x + 3y$

$\underline{5x} \; \underline{- 7y} + \underline{10x} + \underline{3y}$

$15x - 4y$

Ex. 2: $-8h^2 + 10h^3 - 12h^2 - 15h^3$

$\underline{-8h^2} + \underline{10h^3} \; \underline{- 12h^2} \; \underline{- 15h^3}$

$-20h^2 - 5h^3$

II. Applying the Distributive Property

- Every term inside the parentheses is multiplied by the term outside of the parentheses.

Ex. 1: $3(9x-4)$

$3 \cdot 9x - 3 \cdot 4$

$27x - 12$

Ex. 2: $4x^2(5x^3 + 6x)$

$4x^2 \cdot 5x^3 + 4x^2 \cdot 6x$

$20x^5 + 24x^3$

III. Combining Like Terms AND the Distributive Property (Problems with a Mix!)

- Sometimes problems will require you to distribute AND combine like terms!!

Ex. 1: $3(4x-2)+13x$

$3 \cdot 4x - 3 \cdot 2 + 13x$

$12x - 6 + 13x$

$25x - 6$

Ex. 2: $3(12x-5)-9(-7+10x)$

$3 \cdot 12x - 3 \cdot 5 - 9(-7) - 9(10x)$

$36x - 15 + 63 - 90x$

$-54x + 48$

Simplifying and Evaluating Expressions

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] $p-n$

B. Solving Equations

I. Solving Two-Step Equations

A couple of hints:

1. To solve an equation, UNDO the order of operations and work in the reverse order.
2. REMEMBER! Addition is "undone" by subtraction, and vice versa. Multiplication is "undone" by division, and vice versa.

$$\begin{aligned} Ex.\,1:\ & 4x-2=30 \\ & +2\ \ +2 \\ & 4x=32 \\ & \div 4\ \ \div 4 \\ & x=8 \end{aligned}$$

$$\begin{aligned} Ex.\,2:\ & 87=-11x+21 \\ & -21\qquad -21 \\ & 66=-11x \\ & \div -11\ \ \div -11 \\ & -6=x \end{aligned}$$

II. Solving Multi-step Equations With Variables on Both Sides of the Equal Sign

- When solving equations with variables on both sides of the equal sign, be sure to get all terms with variables on one side and all the terms without variables on the other side.

$$\begin{aligned} Ex.\,3:\ & 8x+4=4x+28 \\ & -4\qquad -4 \\ & 8x=4x+24 \\ & -4x\ \ -4x \\ & 4x=24 \\ & \div 4\ \ \div 4 \\ & x=6 \end{aligned}$$

III. Solving Equations that need to be simplified first

- In some equations, you will need to combine like terms and/or use the distributive property to simplify each side of the equation, and then begin to solve it.

$$\begin{aligned} Ex.\,4:\ & 5(4x-7)=8x+45+2x \\ & 20x-35=10x+45 \\ & -10x\qquad -10x \\ & 10x-35=45 \\ & +35\ \ +35 \\ & 10x=80 \\ & \div 10\ \ \div 10 \\ & x=8 \end{aligned}$$

Solving Linear Equations

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

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

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

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

IV. Solving Literal Equations

- A literal equation is an equation that contains more than one variable.
- You can solve a literal equation for one of the variables by getting that variable by itself (isolating the specified variable).

Ex. 1: $3xy = 18$, Solve for x.

$$\frac{3xy}{3y} = \frac{18}{3y}$$

$$x = \frac{6}{y}$$

Ex. 2: $5a - 10b = 20$, Solve for a.

$$+10b = +10b$$

$$5a = 20 + 10b$$

$$\frac{5a}{5} = \frac{20}{5} + \frac{10b}{5}$$

$$a = 4 + 2b$$

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] $V = \frac{1}{3}(\ell \cdot w \cdot h)$ 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

C. Rules of Exponents

Multiplication: Recall $(x^m)(x^n)=x^{(m+n)}$ *Ex:* $(3x^4y^2)(4xy^5)=(3\cdot 4)(x^4\cdot x^1)(y^2\cdot y^5)=12x^5y^7$

Division: Recall $\frac{x^m}{x^n}=x^{(m-n)}$ *Ex:* $\frac{42m^5j^2}{-3m^3j}=\left(\frac{42}{-3}\right)\left(\frac{m^5}{m^3}\right)\left(\frac{j^2}{j^1}\right)=-14m^2j$

Powers: Recall $(x^m)^n = x^{(m\cdot n)}$ *Ex:* $(-2a^3bc^4)^3 = (-2)^3(a^3)^3(b^1)^3(c^4)^3 = -8a^9b^3c^{12}$

Power of Zero: Recall $x^0 = 1,\ x \neq 0$ *Ex:* $5x^0y^4 = (5)(1)(y^4) = 5y^4$

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] $(4y^2)(-y^6)$

3] $(n^3)^4$

4] $(-2a)^2$

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

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] $(7a^4)(-a^5)$

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

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

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

16] $(a^5)^2$

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

18] $\frac{(4x^4)(-x^5)}{(2x)^2}$

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

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

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

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

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

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

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

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

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

28] $(7^3)(7^{11})$

29] x^2x^6

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

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

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

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

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] $\left(\frac{a^{-\frac{1}{2}}}{a^{-\frac{2}{3}}}\right)^6$

D. Binomial Multiplication

I. Reviewing the Distributive Property

The distributive property is used when you want to multiply a single term by an expression.

Ex 1: $8(5x^2 - 9x)$

$8 \cdot 5x^2 + 8 \cdot (-9x)$

$40x^2 - 72x$

II. Multiplying Binomials – the FOIL method

When multiplying two binomials (an expression with <u>two</u> terms), we use the "FOIL" method. The "FOIL" method uses the distributive property <u>twice</u>!

FOIL is the order in which you will multiply your terms.

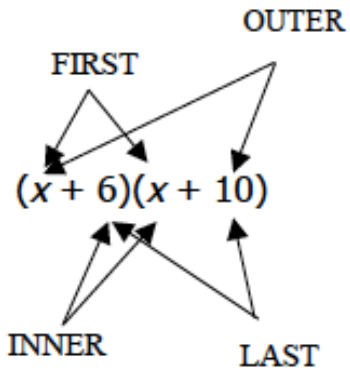
First

Outer

Inner

Last

Ex. 1: $(x + 6)(x + 10)$



First	$x \cdot x$ ------> x^2
Outer	$x \cdot 10$ -----> $10x$
Inner	$6 \cdot x$ ------> $6x$
Last	$6 \cdot 10$ -----> 60

$x^2 + 10x + 6x + 60$

$x^2 + 16x + 60$

(After combining like terms)

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

E. Factoring

I. Using the Greatest Common Factor (GCF) to Factor.

- Always determine whether there is a greatest common factor (GCF) first.

Ex. 1 $3x^4 - 33x^3 + 90x^2$

- In this example the GCF is $3x^2$.
- So when we factor, we have $3x^2(x^2 - 11x + 30)$.
- Now we need to look at the polynomial remaining in the parentheses. Can this trinomial be factored into two binomials? In order to determine this make a list of all of the factors of 30.

30		30	
1	30	-1	-30
2	15	-2	-15
3	10	-3	-10
5	6	-5	-6

Since $-5 + -6 = -11$ and $(-5)(-6) = 30$ we should choose -5 and -6 in order to factor the expression.

- The expression factors into $3x^2(x-5)(x-6)$

Note: Not all expressions will have a GCF. If a trinomial expression does not have a GCF, proceed by trying to factor the trinomial into two binomials.

II. Applying the difference of squares: $a^2 - b^2 = (a-b)(a+b)$

Ex. 2 $4x^3 - 100x$

$4x(x^2 - 25)$

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

Since x^2 and 25 are perfect squares separated by a subtraction sign, you can apply the difference of two squares formula.

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] $2x^4 + 9x^3 - 5x^2$

F. Radicals

To simplify a radical, we need to find the greatest perfect square factor of the number under the radical sign (the radicand) and then take the square root of that number.

Ex. 1 : $\sqrt{72}$

$\sqrt{36}\cdot\sqrt{2}$

$6\sqrt{2}$

Ex. 2 : $4\sqrt{90}$

$4\cdot\sqrt{9}\cdot\sqrt{10}$

$4\cdot 3\cdot\sqrt{10}$

$12\sqrt{10}$

Ex. 3 : $\sqrt{48}$

$\sqrt{16}\sqrt{3}$

$4\sqrt{3}$

OR

Ex. 3 : $\sqrt{48}$

$\sqrt{4}\sqrt{12}$

$2\sqrt{12}$ ← This is not simplified completely because 12 is divisible by 4 (another perfect square)

$2\sqrt{4}\sqrt{3}$

$2\cdot 2\cdot\sqrt{3}$

$4\sqrt{3}$

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] $\frac{10}{5-\sqrt{5}}$

G. Graphing Lines

I. Finding the Slope of the Line that Contains each Pair of Points.

Given two points with coordinates (x_1, y_1) and (x_2, y_2), the formula for the slope, m, of the line containing the points is $m = \dfrac{y_2 - y_1}{x_2 - x_1}$.

Ex. (2, 5) and (4, 1)

$m = \dfrac{1-5}{4-2} = \dfrac{-4}{2} = -2$

The slope is -2.

Ex. (-3, 2) and (2, 3)

$m = \dfrac{3-2}{2-(-3)} = \dfrac{1}{5}$

The slope is $\dfrac{1}{5}$

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.

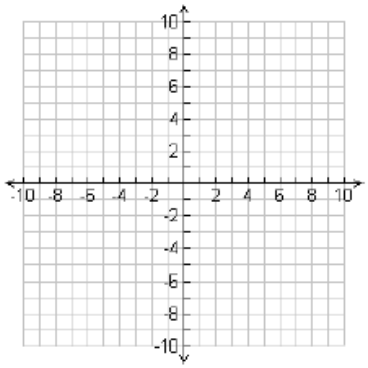
1] $(-2,5),\ (-8,1)$

2] $(-1,-4),\ (2,2)$

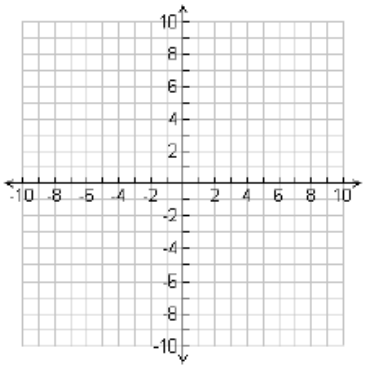
3] $(-3,8),\ (-3,4)$

Graph the functions.

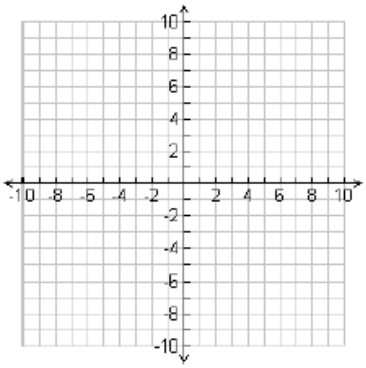
4] $y = 2x - 3$



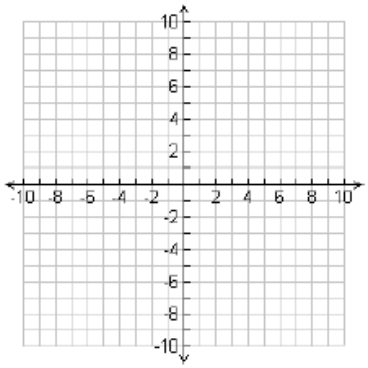
6] $y = -x$



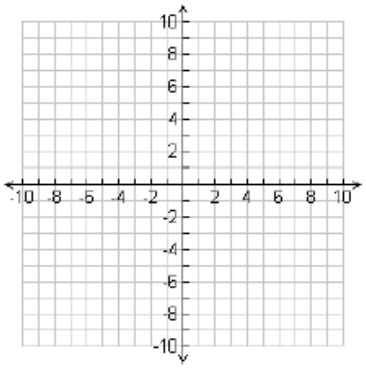
7] $y = \dfrac{3}{2}x + 4$



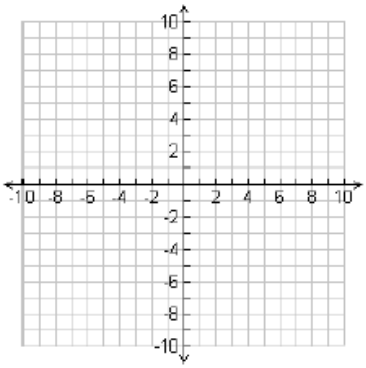
8] $y = 4$



9] $x = -4$

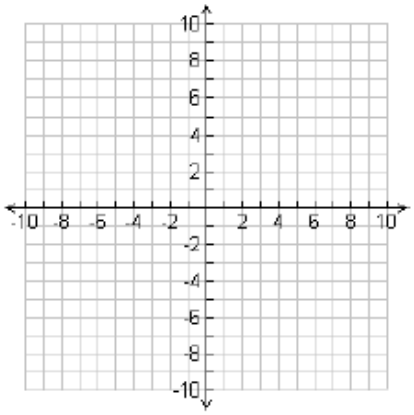


10] $2x + 4y = 8$

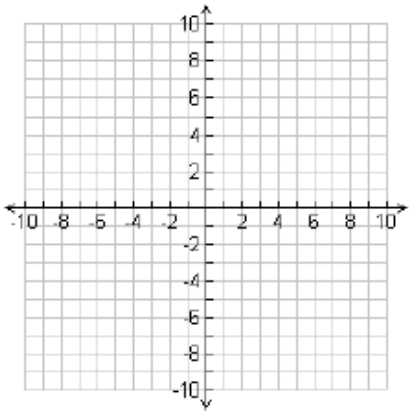


Graph the functions.

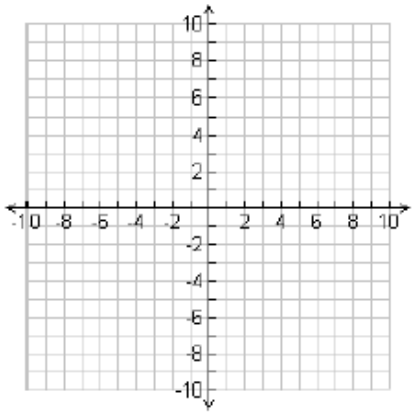
10] $2x-y=-4$



11] $y=-x-1$

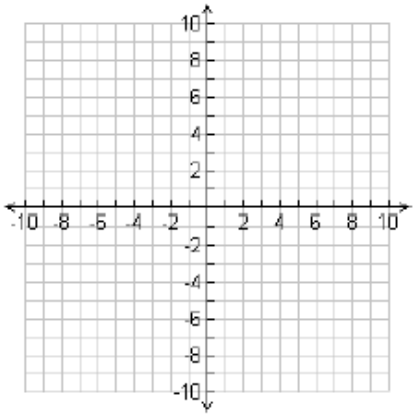


12] $-3x+4y=12$

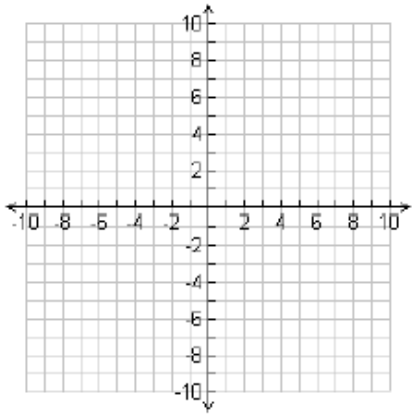


Graph the inequalities.

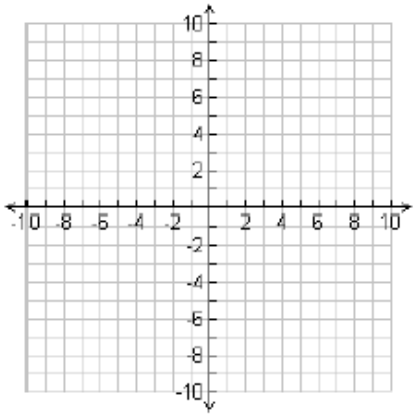
13] $y\le -4$



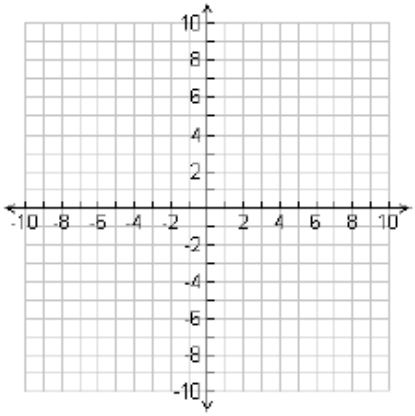
14] $y\le -x-1$



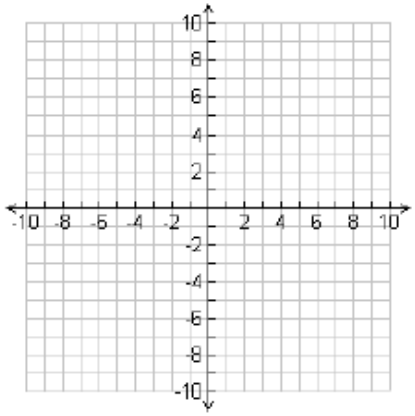
15] $x<-3$



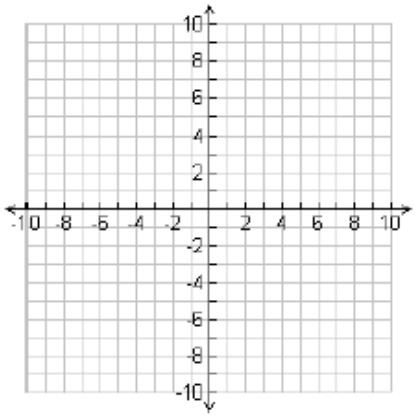
16] $y\ge -\frac{2}{3}x$



17] $4x-2y>12$



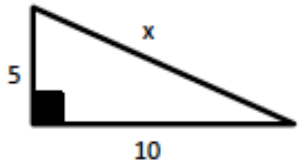
18] $-3x+5y\le 15$



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

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

1]



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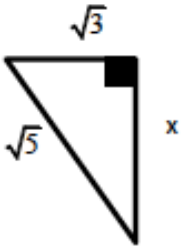

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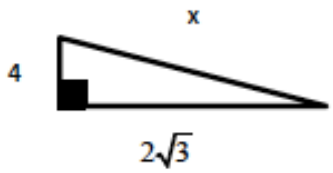

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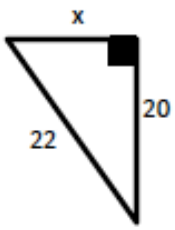

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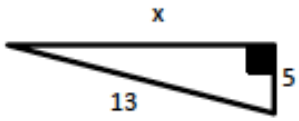

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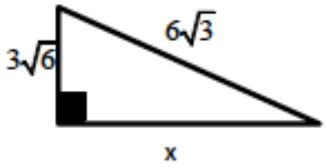

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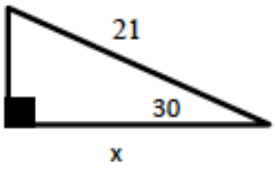

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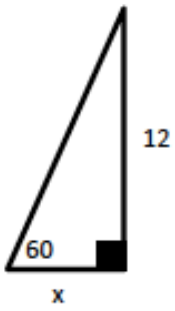
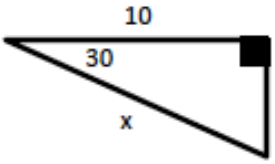
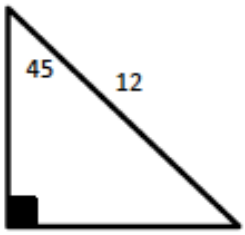


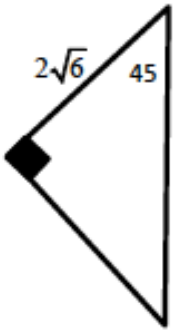
9]



10]



11]



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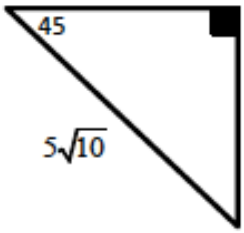
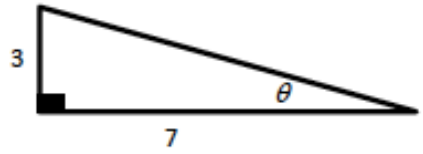


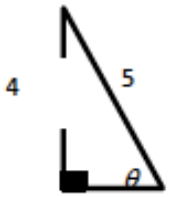
Using the given right triangle and without a calculator find the following trig ratios.

13] Solve for $\sin\theta$.



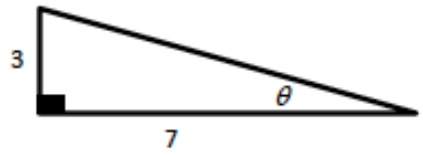
14] Solve for $\tan\theta$.

15] Solve for $\cos\theta$.

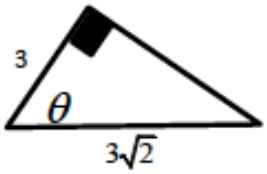


Using the given right triangle and a calculator find the measure of θ to the nearest hundredth of a degree.

16]



17]



18]