Summer Assignment

Calculus: Review Name _____

Complete these with work and answers on the worksheets.

This is all material that you should know when you begin Calculus. Most of this material was reviewed or learned in PreCalc, so your notes from that class are a good resource. If you come across something that you do not remember, look for help in a variety of resources (*ex*. PreCalc notes, internet or Google, friends, or **if all else fails**, email me at mmatonak@wcboe.org). Do not email me for help until you have tried finding answers on your own. You should not leave anything blank.

This is your first grade in Calculus worth **several Homework Assignments**, and there will be a **QUIZ** on this in the first few days of school.

This will take some students longer than others, but I would estimate about 20 to 30 minutes per worksheet. That means, this should take you about 5 to 7 hours total. You should be able to find 5 to 7 hours in the next 10 weeks to complete this assignment. **Do NOT wait until the night before the first day of school.** Do it soon, or start it in June, continue in July, and finish up in the beginning of August. Just **do NOT wait until late August** when school is about to start.

If this seems like too much work, **calculus is not for you**. Also, if this material is very unfamiliar to you and a 20 minute worksheet takes you over an hour, you need to be willing to put in that extra time to compensate for your weakness in certain areas. Again, if this is not something you are willing to do, **calculus is not for you**.

Also, **you will need a TI-83 or TI-84 Graphing Calculator** for this class. They are somewhat expensive, but they are a good investment if you plan on going on to college or some other type of post-secondary schooling after you graduate. There will be a calculator skills check-up in the first 2 weeks of school.

Thanks and have a great summer,

Mr Matonak

Worksheets

Calc: Basic Algebra Review.

Simplify:

1) $\frac{18x^3y^2}{6x^2y^2}$ 2) $\left(-x^3\right)^2 x^4$ 3) $x^2 \cdot x \cdot x^4$ 4) $\left(3^2\right)(6^0)(2^{-3})$

Multiply.

5) $(x-3)\left(x^2+3x+9\right)$ 6) $(x-7)^2$ 7) $(3x+5)^2$

Solve.

8) $5x+7=15+3x$ 9) $\frac{1}{3}x-4=5$ 10) $\sqrt{2x-3}+5=9$

Calc: *Graphing Calculator* Name _____

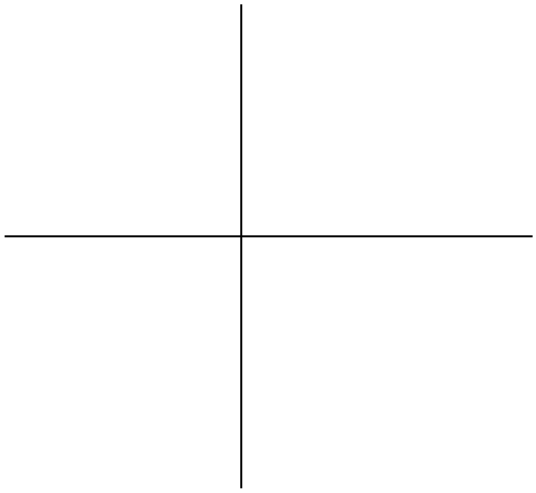
You MUST your calculator to complete these.

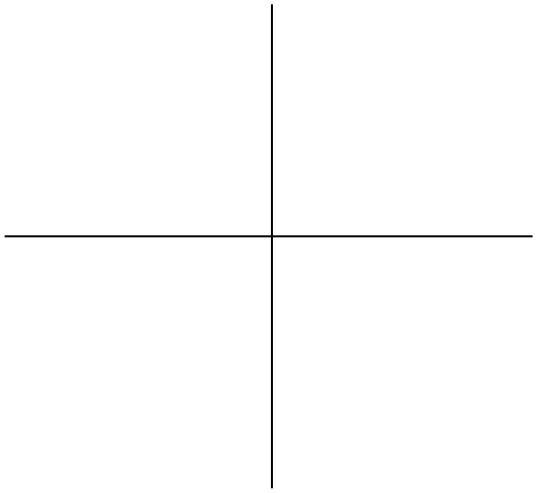
I. Sketch the graph using your calculator.

1) $y = 4 - \dfrac{x}{x+1}$

2) $y = |x^2 - 9|$ Absolute Value:

MATH button $\rightarrow$ then NUM then $\downarrow$ "abs(





II. Find the ***x*-intercepts** of the function. (**Round to 3 decimal places)**.

2^{ND} TRACE button $\downarrow$ then "zero"

3) $y = x^2 - 2 + \sin x$

x - intercepts: _____ and _____

III. Find the **points of intersection**. (**Round to 3 decimal places)**. Write as points (*x*, *y*)

2^{ND} TRACE button $\downarrow$ then "intersect"

4) $y = 3x^4 + 2x - 7$ and $y = x^2 + 5x + 3$

Intersection points: _____ and _____

5) $y = \ln(x+4)$ and $y = e^{\frac{x^2}{2}} - 3$

Intersection points: _____ and _____

IV. Complete the table using your graphing calculator.

6) $f(x) = \dfrac{x^3 - 1}{x - 1}$ Round to **4** decimal places.

x	0.75	0.9	0.99	0.999	1	1.001	1.01	1.1	1.25
f(x)									

7) $f(x) = \dfrac{x}{\sqrt{x+1} - 1}$ Round to **4** decimal places.

x	-0.1	-0.01	-0.001	-0.0001	0	0.0001	0.001	0.01	0.1
f(x)									

8) $f(x) = \dfrac{\sin 9x}{x}$ Round to **4** decimal places.

x	-0.5	-0.1	-0.01	-0.001	0	0.001	0.01	0.1	0.5
f(x)									

Calculus: *Lines*

Steps for graphing:

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1) Solve for *y*. Put the equation in the form ***y = mx +b***

2) Start at ***b*** on the *y*-axis. This is the first point.

3) From there, rise and run according to slope, ***m***.

(For a negative slope, EITHER move **down** *or* **back**, but not both)

4) Connect these two points with a STRAIGHT-EDGE

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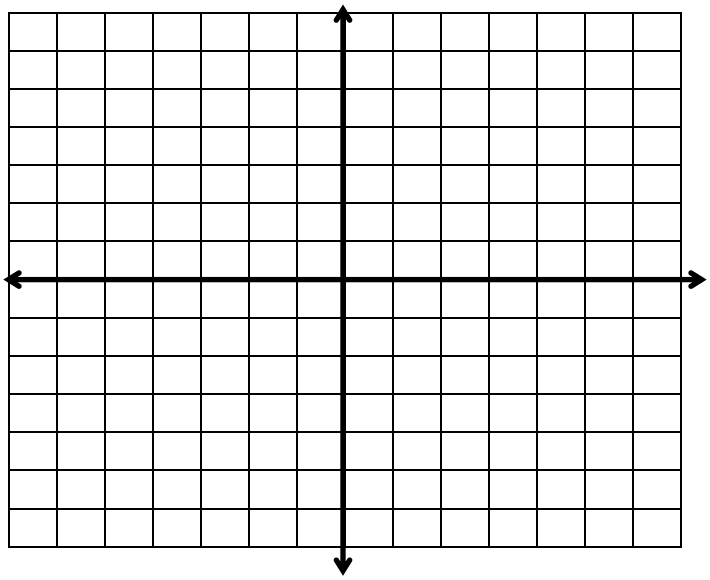
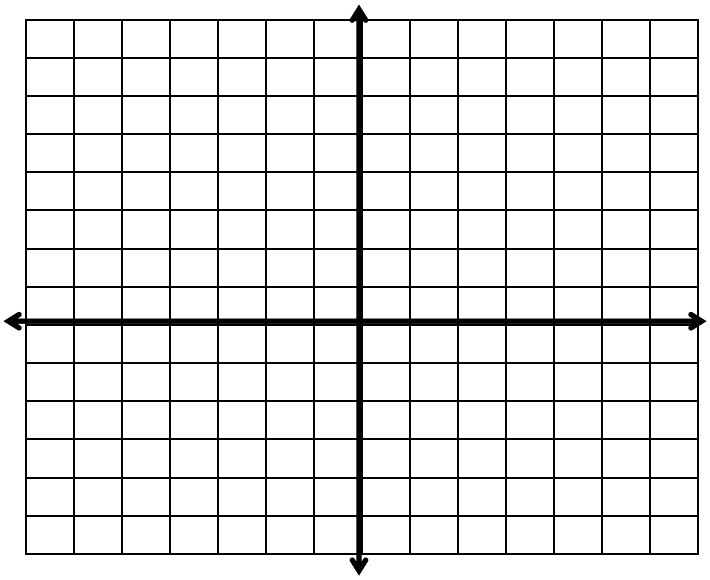
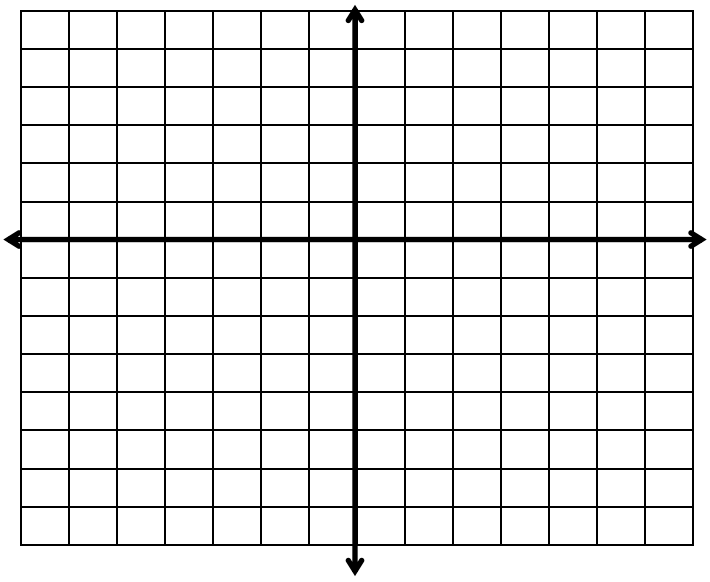
1) $y = \frac{2}{3}x - 5$



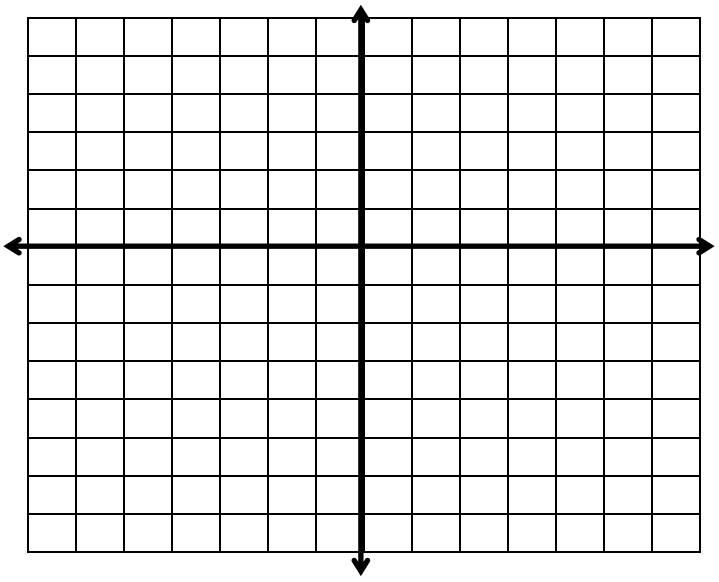
2) $y = -\frac{5}{4}x + 3$



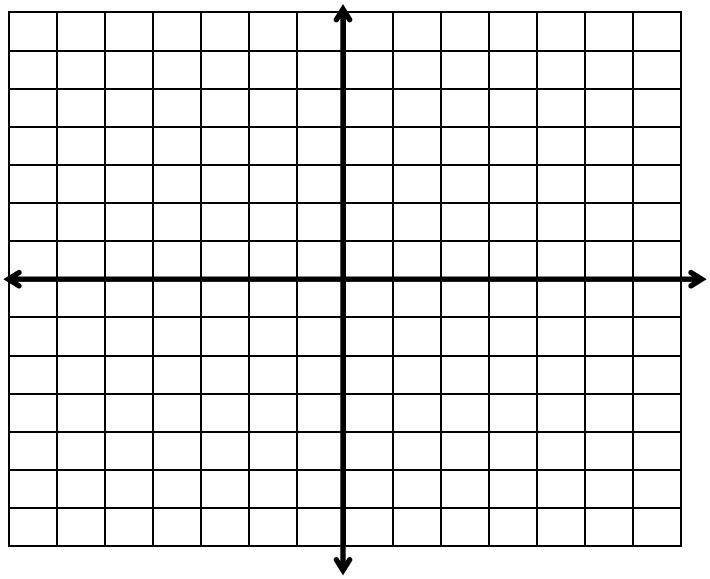
3) $y = 3x - 4$



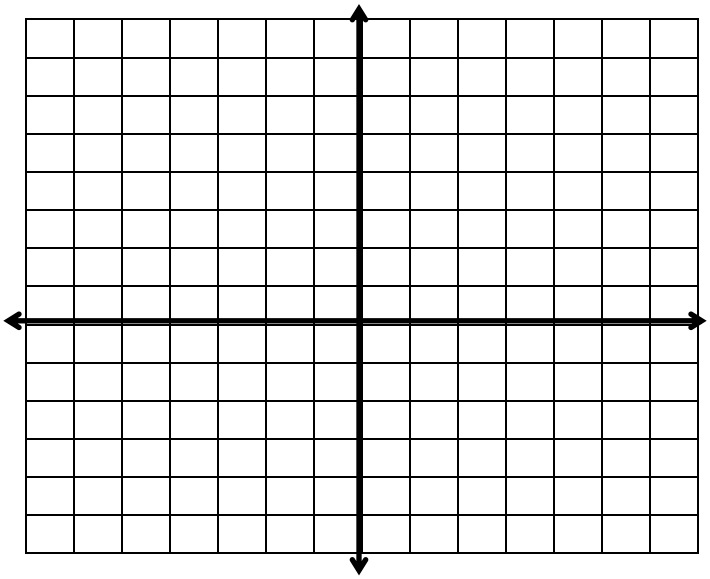
4) $y = \frac{-1}{6}x$



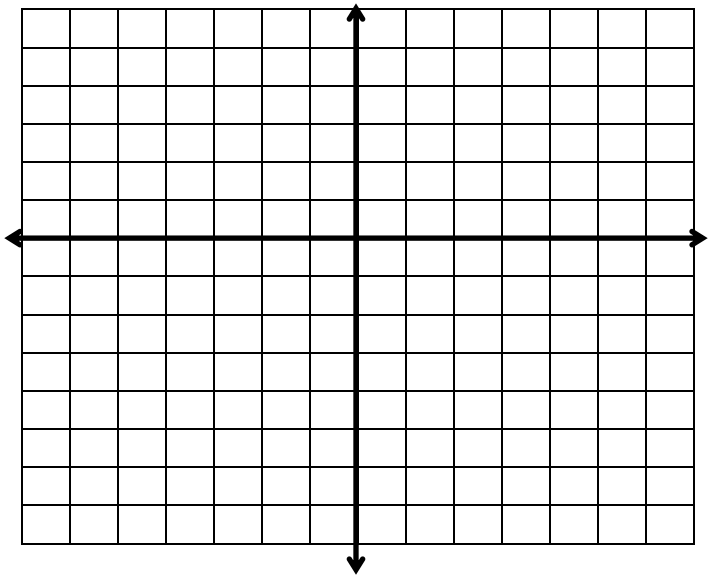
5) $3y = 2x - 15$



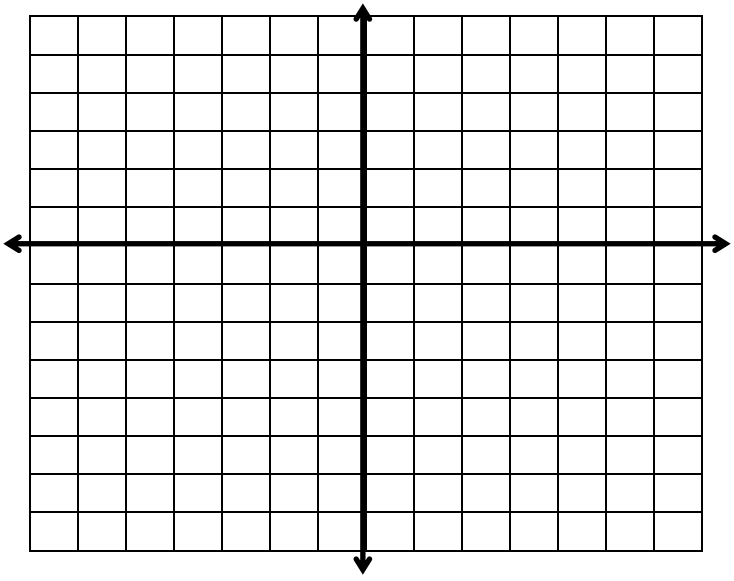
6) $4x + y = 7$



7) $3x - 5y = 10$



8) $2y + x = -6$



Calculus: *Lines*

I. Find the **slope** of the line. Simplify all fractions.

ex) Through (x_1, y_1) and (x_2, y_2)

m= $\frac{y_2 - y_1}{x_2 - x_1}$

1) Through (6, -5) and (-4, 3)

m=

2) Through (-5, -2) and (5, -2)

m=

3) Through (-4, 3) and (-4, -1)

m=

ex) Line with equation $Ax + By = C$ m= $\frac{-A}{B}$

4) Line with equation $5x - 7y = 13$

m=

5) Line with equation $-4x - 6y = 5$

m=

6) Line with equation $2x = -5$

m=

7) Line with equation $y = 11$

m=

II. Find the x and y intercepts of the line. **Give your answers as <u>points</u>**.

8) $-4x + 3y = 8$.

<u>x -intercept:</u>

<u>y -intercept:</u>

Find the **equation** of the line in *Standard Form* ***(Ax+By=C)***

9) Find the equation of the line through (4, -2) with a slope of $\frac{-3}{7}$.

10) Find the equation of the line through (-1, 3) and (2, 5).

11) Find the equation of the line through (-5, 1) and **parallel** to $-2x+7y=-11$

12) Find the equation of the line through (-6, 2) and **perpendicular** to $-4x+3y=7$

Calc: *Factoring*

I. Fill in the number to make the **perfect square**. You should know these from memory.

$(\quad)^2 = 16$	$(\quad)^2 = 144$	$(\quad)^2 = 81$	$(\quad)^2 = 25$
$(\quad)^2 = 64$	$(\quad)^2 = 36$	$(\quad)^2 = 4$	$(\quad)^2 = 121$
$(\quad)^2 = 9$	$(\quad)^2 = 100$	$(\quad)^2 = 49$	$(\quad)^2 = 1$

II. Compete these **perfect cubes**.

$1^3 =$ __ $2^3 =$ __ $3^3 =$ ___ $4^3 =$ ___ $5^3 =$ _____ $6^3 =$ _____

III. Factor completely.

Trinomials with leading coefficient

Example: $3x^2 + 10x + 8$

Factor:

Grouping

Example: $9x^3 + 27x^2 - 4x - 12$

Factor:

Quadratic Trinomial

Example: $x^2 + 10xy - 24y^2$

Factor:

Difference of 2 Squares

Example: $16x^4 - 81$

Formula:

Factor:

Greatest Common Factor (GCF)

Example: $75x^5y - 27x^3y^3$

Factor:

Sum of Cubes

Example: $64x^3 + 27$

Formula:

Factor:

Quadratic type

Example: $x^4 + 21x^2 - 100$

Factor:

Difference of 2 Cubes

Example: $x^3 - 125y^3$

Formula:

Factor:

Calc: *Functions*

I. Given the functions *f* and *g*, find the combination function. Simplify where possible.

1) $f(x) = x^2 - 2x, \quad g(x) = 3 + 2x$ Find $(f \circ g)(x) =$ _____

2) $f(x) = x^2 - 2x, \quad g(x) = 3 + 2x$ Find $(f \circ f)(x) =$ _____

3) $f(x) = 3x - 1, \quad g(x) = \dfrac{x+7}{3}$ Find $(g \circ f)(x) =$ _____

II. Evaluate the function.

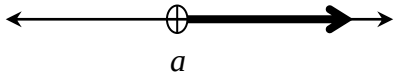
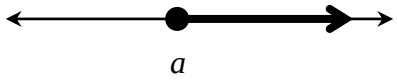
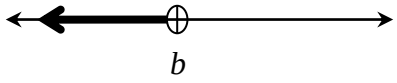
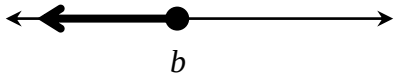
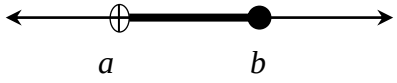
4) $f(x) = \begin{cases} \frac{x}{2} + 1, & x > -3 \\ 3 - x, & x \le -3 \end{cases}$ a) $f(-4) =$ ____ b) $f(-2) =$ ____

5) $f(x) = x^2 - 2x + 1$ a) $f(-3) =$ ____ b) $f(x+2) =$ _____

Calc: *Interval Notation* Name _____

"●" which means equal is now "] " or " ["
$\leq$ or $\geq$

"○" which means **not** equal is now ") " or " ("
$<$ or $>$

Set Notation	Graph	Interval Notation
$x > a$		(a, ∞)
$x \geq a$		$[a, \infty)$
$x < b$		$(-\infty, b)$
$x \leq b$		$(-\infty, b]$
$a < x \leq b$		$(a, b]$
All Reals		$(-\infty, \infty)$

I. Translate the following from Set Notation to **Interval Notation**. Put answers in the box.

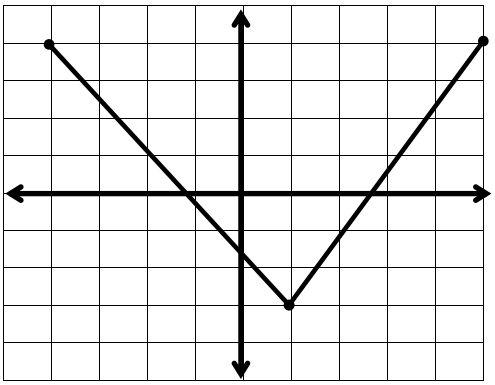
1) $x > 5$ 2) $x \leq -6$ 3) $2 < x \leq 15$ 4) All Reals 5) $x \geq 0$

II. Translate the following from Interval Notation to **Set Notation**. Put answers in the box.

6) $[-2, 3)$ 7) $[-4, \infty)$ 8) $(-\infty, 9)$ 9) $(7, \infty)$ 10) $(-\infty, -6]$

Calc: *Domain*

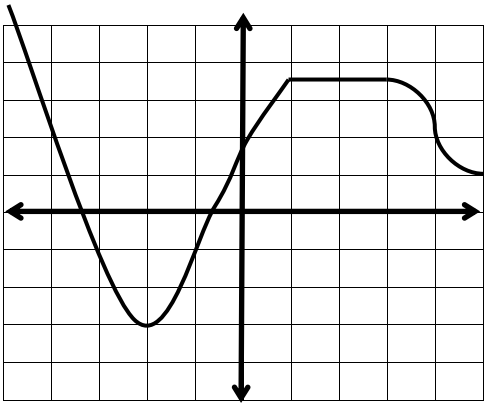
I. Find the Domain and the Range of the function given the graph. Use **interval** notation.



Domain: _____

Range: _____

II. Tell where the function is Increasing, Decreasing, and Constant given the graph. Use ***open*** **intervals.**



Increasing: _____

Decreasing: _____

Constant: _____

III. What are two <u>limitations</u> on the Domain?

1)_____

2)_____

IV. Complete the sentence.

If a function has **NO** _____ and **NO** _____ _____

then the Domain is _____ _____ _____.

V. Find the Domain given the function. Give your answer in *Interval Notation*

1) $f(x)=\sqrt{5x+1}$

2) $g(x)=2x^2-3x$

3) $j(x)=\dfrac{x^2+12x-5}{x-7}$

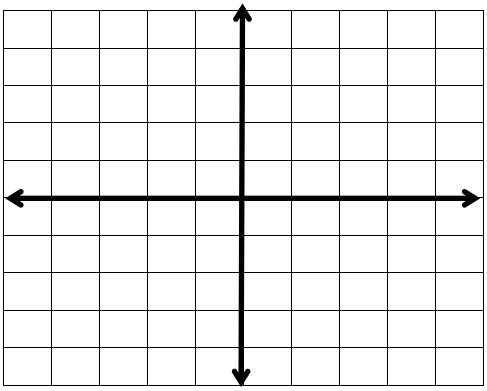
4) $f(x)=\sqrt[3]{2x-6}$

5) $h(x)=\dfrac{x^2}{x^2-5}$

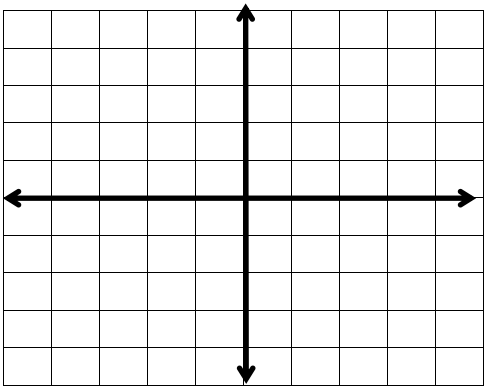
6) $k(x)=\dfrac{\sqrt{2x+4}}{x^2-9}$

Calculus: Practice - **Basic Graphs**

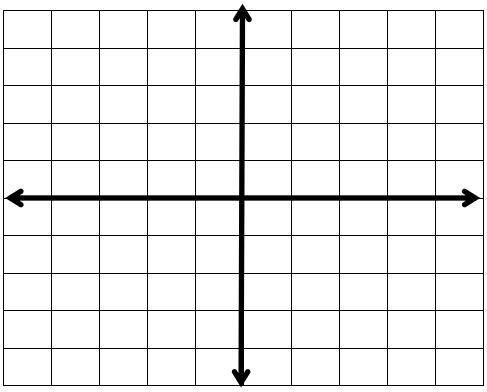
1) $f(x)=|x|$ ↴



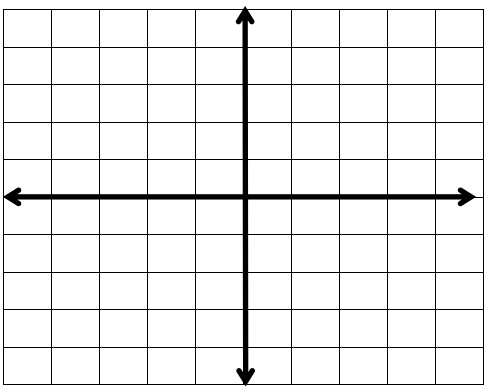
2) $f(x)=x$ ↴



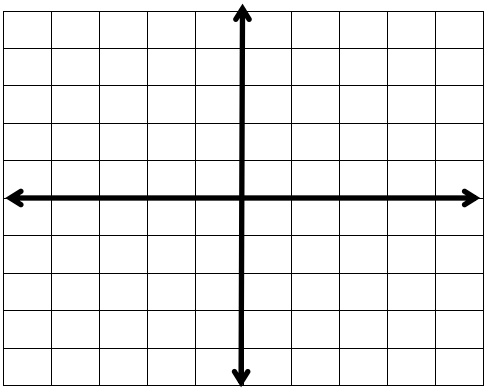
3) $f(x)=3$ ↴



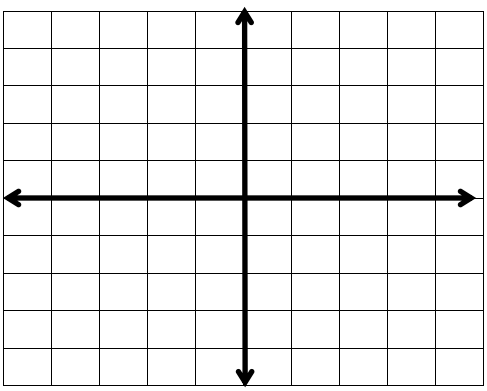
4) $f(x)=\frac{-2}{3}x+1$ ↴



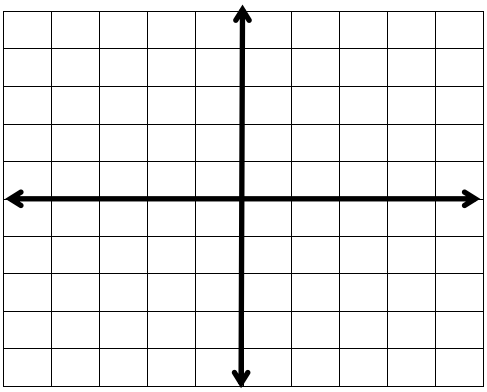
5) $f(x)=\sqrt{x}$ ↴



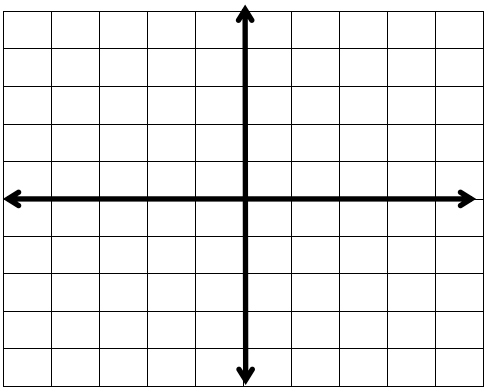
6) $f(x)=x^2$ ↴



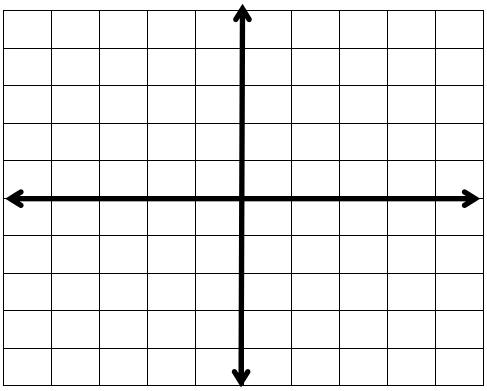
7) $f(x) = x^3$ ↴



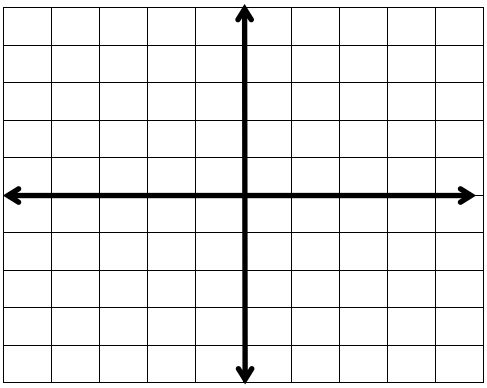
8) $f(x) = [\![x]\!]$ ↴ What is this function called?



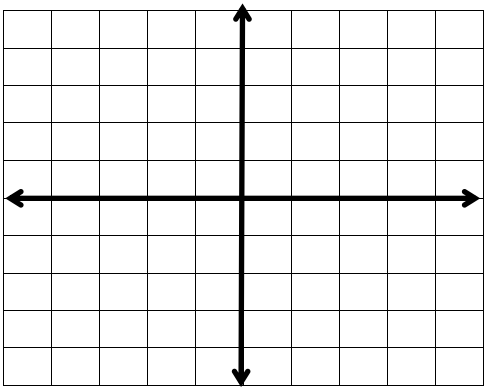
9) $f(x) = \frac{1}{x}$ ↴



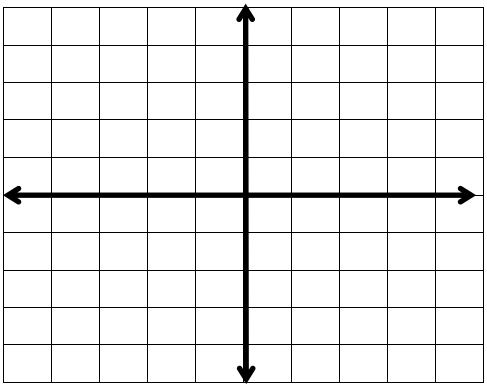
10) $f(x) = \frac{1}{x^2}$ ↴



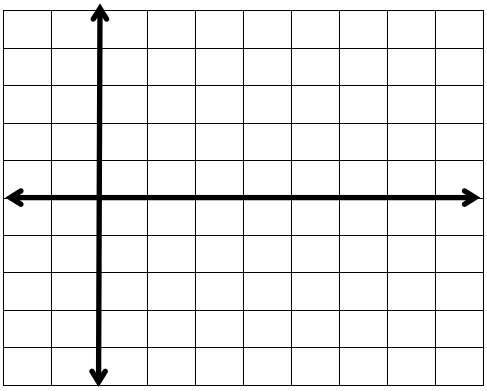
11) $f(x) = a^x$ ↴



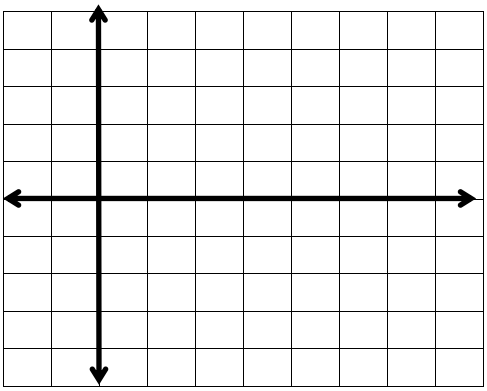
12) $f(x) = \log_a x$ ↴



15) $f(x) = \sin x$ ↴



14) $f(x) = \cos x$ ↴



Calc: Review *Shifting and Reflecting* Name _____

Shifting:

Outside = Up/Down $f(x)+c$ Shifts Up c units. $f(x)-c$ Shifts **Down** c units.

$-f(x)$ Reflects up/down about the ***x*-axis**

Inside = Left/Right $f(x+c)$ Shifts **Left** c units. $f(x-c)$ Shifts **Right** c units.

$f(-x)$ Reflects left/right about the ***y*-axis**

II. Tell the *parent function*, then tell how it is shifted and/or reflected.

3) $f(x)=-\sqrt{-x}$ _____

4) $f(x)=(x+2)^2+5$ _____

5) $f(x)=(x-1)^3-7$ _____

6) $f(x)=8+|x+1|$ _____

7) $f(x)=5-\sqrt{x}$ _____

III. Write an equation for the function that is described by the given characteristics.

8) The shape of $f(x)=x^2$, but moved three units to the right and one unit down. $f(x)=$ _____

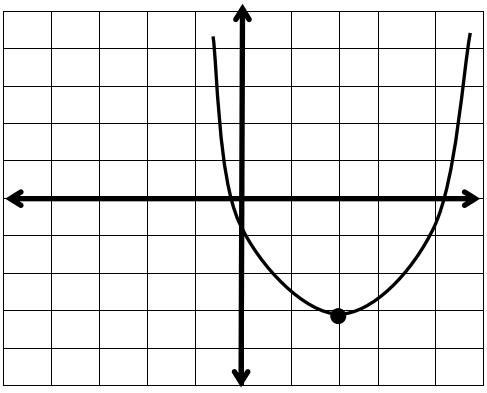
9) The shape of $f(x)=|x|$, but moved two units up and four units left. $f(x)=$ _____

10) The shape of $f(x)=\sqrt{x}$, but moved six units to the left, and reflected in the *x*-axis

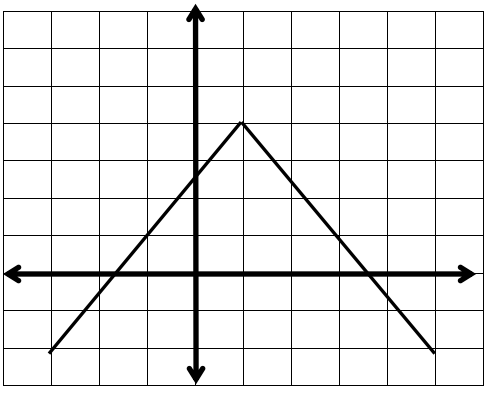
$f(x)=$ _____

IV. Given the graph for the shifted function, identify the parent function then write the function.

11) $f(x)=$

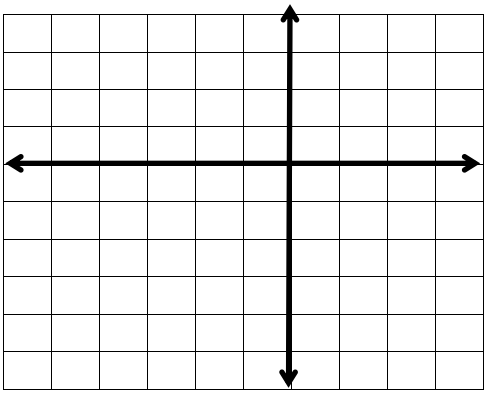


12) $f(x)=$

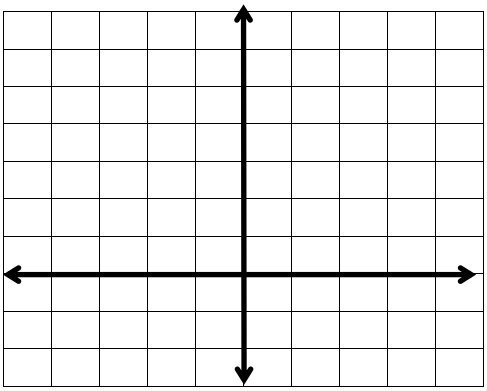


V. Given the equation for the shifted function, NEATLY sketch graph.

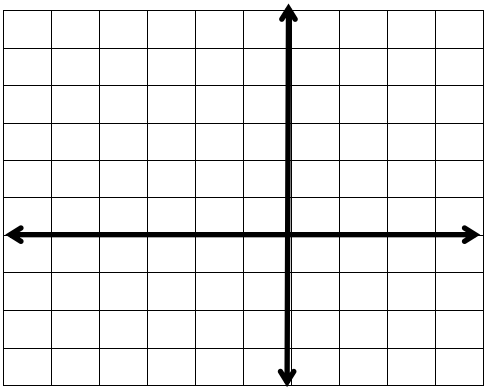
13) $f(x)=(x+3)^3-1$ ↴



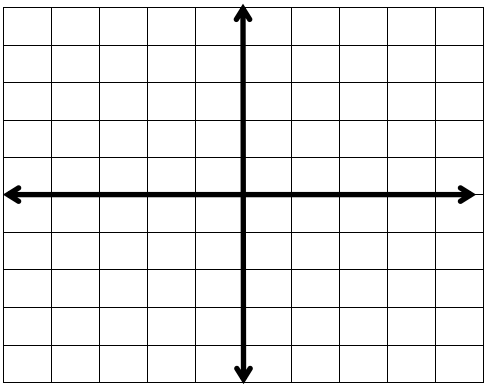
14) $f(x)=|x-2|+3$ ↴



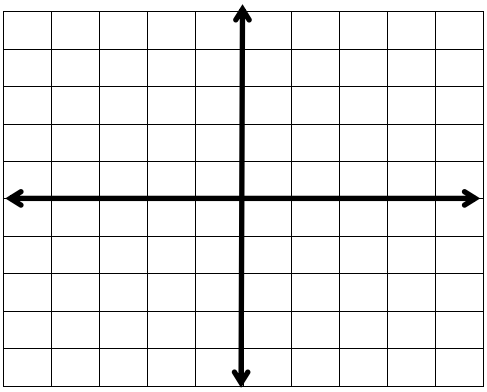
15) $f(x)=3+\sqrt{x+2}$ ↴



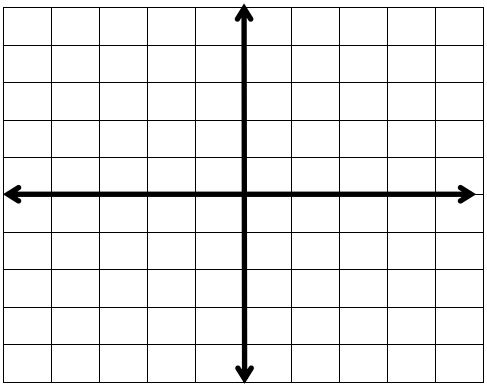
16) $f(x)=-|x|+3$ ↴



17) $f(x)=-\sqrt{-x}$ ↴



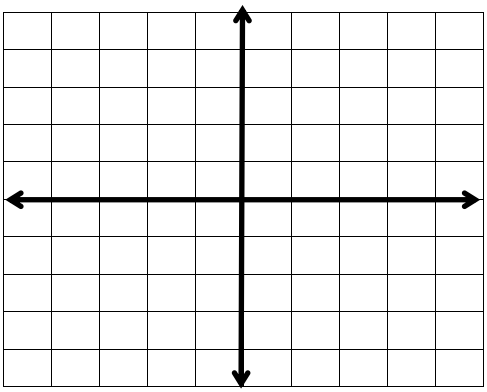
18) $f(x)=-x^2+2$ ↴



Calculus: The *Cartesian* plane.

1) **Plot the points** then **use the Pythagorean Theorem to find the distance** between the two points.

$(-2,1),\quad (3,4)$



The activity above can be generalized to find the distance between two points.

The Distance Formula:

The distance d between the points (x_1, y_1) and (x_2, y_2) in the plane is

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Simplify radicals. Give no decimal answers unless the problem gives decimal points.

Sometimes it is necessary to find the midpoint of the line segment between two points.

The Midpoint Formula:

The midpoint of the line segment joining the points (x_1, y_1) and (x_2, y_2) is

$$\text{Midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Think "average"

2) **Find the distance** between the points using the Distance Formula,
then **find the midpoint** between the points using the Midpoint Formula

$(5,-2)$ and $(3,4)$

Equation of a circle: $(x-h)^2+(y-k)^2=r^2$

Where (h, k) is the center and the radius is *r*.

I. Find the **center** and the **radius** of the given circle.

1) $(x-7)^2+(y+2)^2=9$ Center: (____, ____) Radius: _____

2) $x^2+(y-5)^2=7$ Center: (____, ____) Radius: _____

3) $(y-3)^2+(x+1)^2=32$ Center: (____, ____) Radius: _____

4) $(x-\frac{1}{3})^2+(y+\frac{4}{3})^2=\frac{4}{9}$ Center: (____, ____) Radius: _____

II. Given the center and the radius, write the **equation in standard form**.

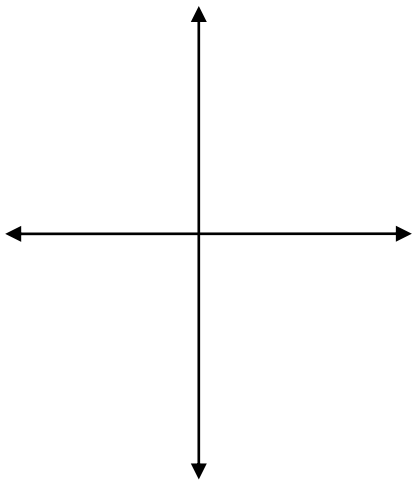
5) Center: $(3,-4)$ Radius: 9

6) Center: $(-2, 0)$ Radius: $\sqrt{7}$

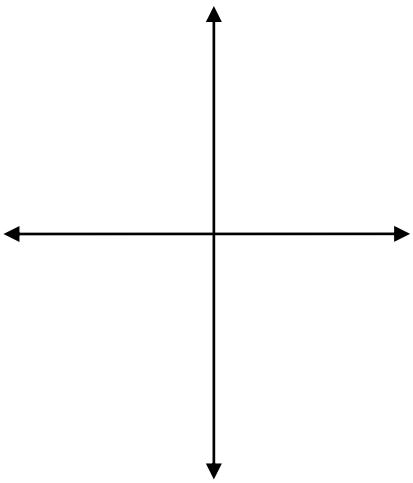
7) Center: $\left(\frac{1}{2}, \frac{-3}{2}\right)$ Radius: $\frac{5}{2}$

Sketch the graph. Use the information on this sheet to help you.

8) $x^2+y^2=25$



9) $y=\sqrt{25-x^2}$



Calc: *Rational Expressions*

I. Simplify. Remember you must **FACTOR** first. ***Circle*** your final answers.

1) $\frac{x^2-9x+20}{x^2-7x+12}$

2) $\frac{x^2-2x-8}{x^2-4x}$

3) $\frac{a^2-b^2}{(a-b)^2}$

4) $\frac{7x^2-21x}{14x^2}$

5) $\frac{4x}{x-1} \cdot \frac{x^2-1}{12x^2}$

6) $\frac{x^3-8}{5x^3} \cdot \frac{10x}{x^2-5x+6}$

7) $\frac{x^2-x-12}{x^2-2x-8} \div \frac{x^2-9}{x^2+2x}$

II. Simplify. Remember you need a common denominator.

9) $\frac{4}{5} - \frac{3}{10} + \frac{1}{2}$

10) $\frac{7}{8} - \frac{1}{6} + \frac{5}{12}$

11) $\frac{x+1}{8} - \frac{2x-1}{6}$

12) $\frac{x^2}{x+3} - \frac{9}{x+3}$

13) $\frac{4}{x+5} + \frac{3}{x-4}$

14) $\frac{3}{x^2-5x+6} + \frac{2}{x^2-4}$

Calc: *Complex Fractions*

I. Simplify.

1) $\dfrac{\frac{5}{6} - \frac{1}{2}}{\frac{1}{12} + \frac{3}{8}}$

2) $\dfrac{\frac{2}{5} - \frac{1}{20}}{\frac{1}{10} + 1}$

3) $\dfrac{x + 1}{1 + \frac{1}{x}}$

4) $\dfrac{x - \frac{1}{x}}{1 - \frac{1}{x}}$

5) $\dfrac{\sqrt{x} - \frac{1}{2\sqrt{x}}}{\sqrt{x}}$

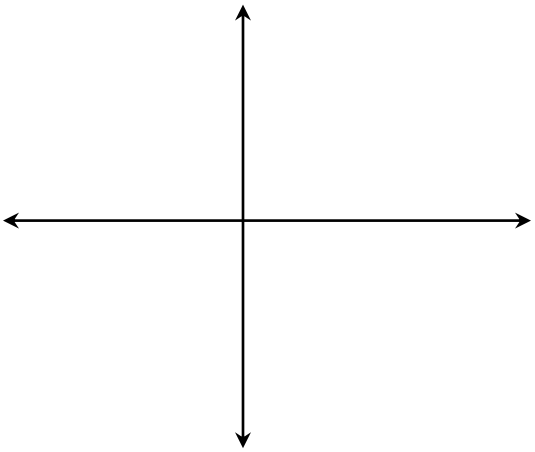
6) $$\frac{\frac{1}{x} - \frac{1}{y}}{\frac{y}{x} - \frac{x}{y}}$$

7) $$\frac{\frac{1}{x^2} - \frac{1}{y^2}}{\frac{1}{x^2} + \frac{2}{xy} + \frac{1}{y^2}}$$

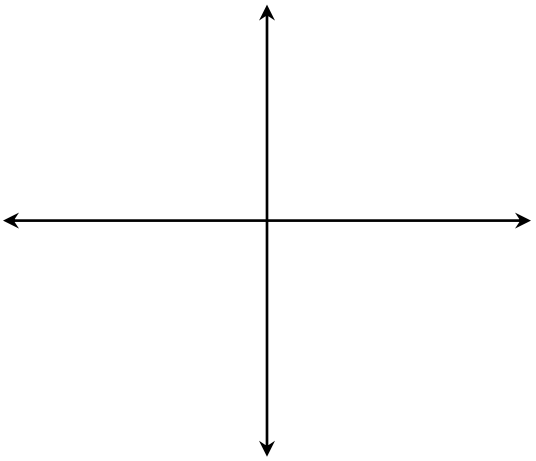
Calc: *Logarithms*

I. Graph the exponential and the logarithmic functions on the graphs below.
Label the 2 characteristics of each graph.

1) $y = \log_a x$



2) $y = a^x$



II. Write the following in ***exponential*** form.

3) $\log_a x = b$ ⟶

III. Write the following in ***logarithmic*** form.

4) $3^4 = 81$ ⟶

IV. Tell the value of the logarithm.

5) $\log_2 8$ 6) $\ln e^2$ 7) $\ln 1$

V. Complete the ***change of base formula***. Write neatly.

Common Logarithm Natural Logarithm

8) $\log_a x$ ⟶ ⟶

VI. You ***must*** use a calculator to find the following.
Circle answers. **Round to 3 decimal places.**

9) $\log_{10} 7$ 10) $\ln 7$ 11) $\log_3 7$

VII. Complete the Properties.

$\log_a(uv) =$ $\qquad$ $\ln(uv) =$

$\log_a\left(\frac{u}{v}\right) =$ $\qquad$ $\ln\left(\frac{u}{v}\right) =$

$\log_a u^n =$ $\qquad$ $\ln u^n =$

VIII. ***Expand*** the following to a sum or difference of logarithms.

12) $\log_5 \sqrt{\frac{x^3(x-1)^2}{y}}$ $\qquad$ 13) $\log_3\left(\frac{\sqrt{b}}{a^4c^2}\right)$

IX. ***Condense*** the following to a single logarithm.

14) $\frac{1}{3}[\log_3 b - 4\log_3 a - 2\log_3 c]$ $\qquad$ 15) $3\log_7 x + 2\log_7(x-1) - \frac{1}{2}\log_7 y$

X. True / False. Tell if the following is true or false. Write the words "*True*" or *"False"* If the statement is *False*, make corrections so that it is *True*.

16) $\log_7 xy = \log x + \log y$ $\qquad$ 17) $\log_3 \frac{x}{y} = \log_3 y - \log_3 x$

18) $n\log_a u = \log_a un$ $\qquad$ 19) $\log_e x = \ln x$

20) $\log_2 \frac{31}{4} = \frac{\log_2 31}{\log_2 4}$ $\qquad$ 21) $\frac{1}{2}\log_7 16 = \log_7 8$

Calc: *Angles*

Write the answers and work on this sheet.

I. Convert to radians. Reduce fractions and leave in terms of π. **Show work.**

1) 72°

2) 225°

II. Convert to degrees. Round your degrees to 2 decimal places. **Show work.**

3) $\frac{7\pi}{6}$

4) 5

III. Give one **positive** co-terminal angle and one **negative** co-terminal angle for each angle.
On #8 round your answer to 2 decimal places. **Show work.**

5) 113°

Pos: _____

Neg: _____

---

6) -75°

Pos: _____

Neg: _____

---

7) $\frac{3\pi}{8}$

Pos: _____

Neg: _____

---

8) 0.7

Pos: _____

Neg: _____

Calc: Trig Equations

I. Use your Unit circle to answer. You should begin to <u>MEMORIZE the Unit Circle</u>.

1) $\sin \frac{5\pi}{3} =$

2) $\cos \frac{7\pi}{6} =$

3) $\tan \frac{5\pi}{4} =$

4) $\cot \frac{4\pi}{3} =$

5) $\csc \frac{5\pi}{6} =$

6) $\sec \frac{7\pi}{4} =$

7) $\cos \frac{-4\pi}{3} =$

8) $\tan \frac{11\pi}{3} =$

9) $\csc \frac{19\pi}{4} =$

II. Give the angle in **radians**. Use your Unit circle two find **<u>TWO angles</u>** between 0 and 2π

10) $\sin \theta = \frac{\sqrt{3}}{2}$

$\theta =$

11) $\sec \theta = 2$

$\theta =$

12) $\tan \theta = -\frac{\sqrt{3}}{3}$

$\theta =$

13) $\csc \theta = \frac{2\sqrt{3}}{3}$

$\theta =$

14) $\cos \theta = -\frac{1}{2}$

$\theta =$

15) $\sin \theta = -\frac{\sqrt{2}}{2}$

$\theta =$

16) $\cot \theta = \frac{\sqrt{3}}{3}$

$\theta =$

17) $\csc \theta = -\sqrt{2}$

$\theta =$

18) $\cot \theta =$ undefined

$\theta =$

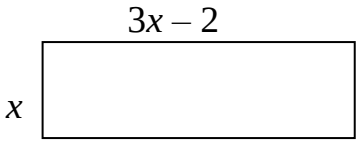
III. Solve. Use your unit circle to find all answers between 0 and 2π.

19) $2\sin^2 x - 1 = 0$

20) $\cot^2 x - 3 = 0$

Calculus: *Word Problems*

1) Tell the ***perimeter*** and the ***area*** of the rectangle drawn below. **Simplify your answers**.
[You will <u>not</u> get a number. Your answer will be an expression of ***x***.]



P = _____

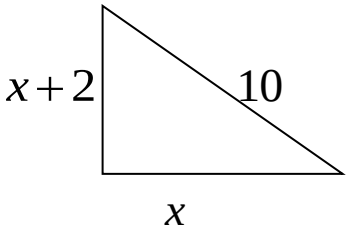
A = _____

2) Draw and label a triangle where the height is 5 *in* greater than the base, ***x***.

3) If the area of the triangle above is 18 in^2, write an equation for area using the labeled sides from the triangle above.

A = ½ bh ⟶ _____ = ____

4) For the **right** triangle below, write an equation that relates the three sides together.



____ + _____ = _____

5) Draw and label a **rectangle** whose length is 5 ft longer than its width, *w*.

6) Write an equation for the area if the **<u>rectangle above</u>** has an area of 66 ft^2.

A = LW ⟶ _____ = ____

Draw a picture for each before you solve the problem. Make sure to **label your answers.** Where needed, **round answers to 2 decimal places**. Circle your final answers.

7) A six foot person standing a certain distance feet away from a 13 foot streetlight casts a 7 foot shadow. How far away is the person from the light? Draw the picture.

8) A 10 meter ramp rises 3 meters to a doorway. What is the angle of elevation of the ramp? Draw the picture.

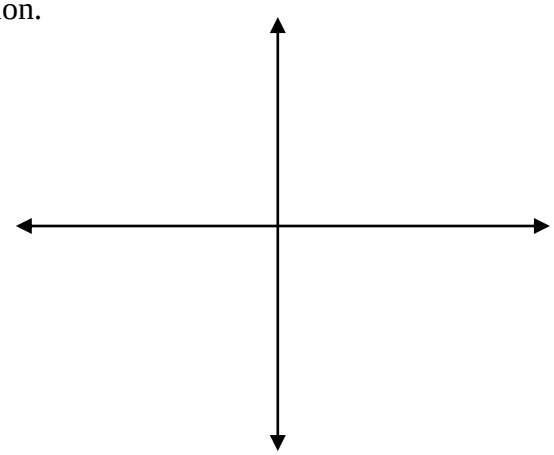
9) To measure the height of a tree, a surveyor walks 150 feet away from the tree and measures the angle of elevation from the ground to the top of the tree to be 35°. How tall is the tree? Draw the picture.

Calc: Tables, rationalizing and complex fractions

I. Complete the table. Then use it to sketch the graph of the function.

1) $f(x) = \dfrac{|x|}{x}$

x	-3	-2	-1	0	1	2	3
$f(x) = \dfrac{\lvert x\rvert}{x}$							



II. Complete the table using your Unit Circle. Then answer the questions.

2) $f(x) = \sin\dfrac{1}{x}$

x	$\frac{2}{\pi}$	$\frac{2}{3\pi}$	$\frac{2}{5\pi}$	$\frac{2}{7\pi}$	$\frac{2}{9\pi}$	$\frac{2}{11\pi}$
$f(x) = \sin\dfrac{1}{x}$						

These x-values are approaching what value?

Are these y-values approaching a value?

III. Simplify.

3) Multiply each term by the LCD to simplify this complex fraction and eventually cancel out x.

$$\frac{\dfrac{1}{x+5} - \dfrac{1}{5}}{x}$$

4) Multiply top and bottom by the conjugate of the numerator to eventually cancel out $x-2$.

$$\frac{\sqrt{x+2}-2}{x-2}$$

Calc: Worksheet Name _____

Asymptotes & Intercepts Date _____

Find ALL asymptotes. If there are not any of a certain type, then write "***none.***"
Find ALL intercepts. List your answers as **points**. If there is an intercept, then write "***none.***"

1) $f(x) = \dfrac{2x^2+3x-5}{x^2-7}$

Vertical Asymptote: _____

Horizontal Asymptote: _____

x-intercepts: _____

y-intercept: _____

2) $f(x) = \dfrac{2x^2+x-7}{x-1}$

Vertical Asymptote: _____

Horizontal Asymptote: _____

x-intercepts: _____

y-intercept: _____

3) $f(x) = \dfrac{x+5}{x^2+4}$

Vertical Asymptote: _____

Horizontal Asymptote: _____

x-intercepts: _____

y-intercept: _____

4) $f(x) = \dfrac{5x+30}{3x-10}$

Vertical Asymptote: _____

Horizontal Asymptote: _____

x-intercepts: _____

y-intercept: _____

5) $f(x) = \dfrac{5}{x^3+8}$

Vertical Asymptote: _____

Horizontal Asymptote: _____

x-intercepts: _____

y-intercept: _____

6) $f(x) = \dfrac{2x-12}{\sqrt{x^2+5x+4}}$

Vertical Asymptote: _____

Horizontal Asymptote: _____

x-intercepts: _____

y-intercept: _____