



SUMMER MATH REVIEW
FOR STUDENTS ENTERING ALGEBRA 2

DO NOT USE A CALCULATOR

NAME: _____

To be successful in math, it is **essential that you are fluent in your addition and multiplication facts**. This means you should be able to recall basic facts **quickly and accurately—without needing to count or use a calculator**.

Being fluent with your math facts will help you:

- Solve more complex problems with confidence,
- Work more efficiently during lessons and tests, and
- Build a strong foundation for higher-level math.

You are expected to practice your addition and multiplication facts regularly until you can recall them automatically. Consistent practice will make math easier, faster, and more enjoyable!

How You Can Practice Your Math Facts:

1. **Make and use flashcards** — practice a few minutes each day.
2. **Play online math games** like *XtraMath*, *Prodigy*, *Khan Academy*, or *Math Playground*.
3. **Set a timer** for 2–3 minutes and see how many facts you can answer correctly — then try to beat your score next time!
4. **Write fact families** (for example, $3 \times 4 = 12$, $4 \times 3 = 12$, $12 \div 4 = 3$, $12 \div 3 = 4$).
5. **Practice with a friend or family member** — quiz each other or make it a fun competition.
6. **Use math apps** that build speed and accuracy through repetition and games.
7. **Make it fun** — create chants, songs, or rhythms to remember tricky facts.

ADDITION CHART

+	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12	13
2	2	3	4	5	6	7	8	9	10	11	12	13	14
3	3	4	5	6	7	8	9	10	11	12	13	14	15
4	4	5	6	7	8	9	10	11	12	13	14	15	16
5	5	6	7	8	9	10	11	12	13	14	15	16	17
6	6	7	8	9	10	11	12	13	14	15	16	17	18
7	7	8	9	10	11	12	13	14	15	16	17	18	19
8	8	9	10	11	12	13	14	15	16	17	18	19	20
9	9	10	11	12	13	14	15	16	17	18	19	20	21
10	10	11	12	13	14	15	16	17	18	19	20	21	22
11	11	12	13	14	15	16	17	18	19	20	21	22	23
12	12	13	14	15	16	17	18	19	20	21	22	23	24

MULTIPLICATION CHART TO 12X12

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Week 1- Integer Operations**Part A: Add or Subtract DO NOT USE A CALCULATOR**

Simplify the following expressions:

1) $-8 + 5$	2) $12 - (-3)$	3) $-6 - 9$	4) $-4 + (-7)$
5) $15 + (-10)$	6) $-3 - (-11)$	7) $-14 + 6$	8) $0 - (-8)$
9) $7 + (-7)$	10) $-20 - 5$	11) $-4 + 16$	12) $-14 - (-14)$

Part B: Multiply or Divide

Solve the following:

1) -4×6	2) -7×-3	3) $18 \div -6$	4) $-32 \div 4$
5) -5×9	6) $-12 \div -3$	7) 6×-8	8) $-81 \div 9$
9) 0×-100	10) -1×11	11) $-72 \div -8$	12) $-24 \div 3$

Part C: Mixed Operations DO NOT USE A CALCULATOR

Use the correct order of operations (PEMDAS):

1) $-3 + 6 \times (-2)$	2) $(4 - 9) + (-3)$	3) $-6 \div 2 + 1$	4) $(-5)^2 - 3 \times 2$
5) $10 - (-2 \times 3)$	6) $3 + 5(-2 \times 3)$	7) $12 - 2(6 - 3)$	8) $15 \div (6 - 9)$
9) A submarine is at -350 meters. It rises 125 meters What is its new position?			
10) A temperature of $-5^\circ C$ drops by $7^\circ C$) What is the new temperature?			

Week 2 - Fraction and Mixed Number Operations DO NOT USE A CALCULATOR

Simplify all answers. Convert to improper fractions if necessary.

1) $\frac{3}{4} + \frac{1}{2}$	2) $-\frac{5}{6} + \frac{2}{3}$	3) $2\frac{1}{4} - \frac{3}{4}$	4) $-1\frac{2}{3} + 2\frac{1}{3}$
5) $-\frac{7}{8} - \frac{1}{4}$	6) $\frac{5}{6} - (-\frac{1}{2})$	7) $-3\frac{1}{2} + \frac{2}{5}$	8) $4\frac{1}{3} + (-2\frac{2}{3})$
9) $-\frac{9}{10} + \frac{3}{5}$	10) $-1\frac{3}{4} - 2\frac{1}{4}$	11) $-2 + (-\frac{3}{4})$	12) $-\frac{3}{10} + 4$
13) $\frac{2}{3} \times \frac{3}{2}$	14) $-\frac{5}{6} \times \frac{2}{3}$	15) $1\frac{1}{2} \times (-2\frac{2}{5})$	16) $-3 \div \frac{3}{4}$
17) $\frac{7}{8} \div (-\frac{1}{2})$	18) $-2\frac{1}{3} \times \frac{3}{7}$	19) $\frac{4}{9} \div \frac{2}{3}$	20) $-\frac{5}{6} \div (-\frac{1}{2})$

Mixed Operations

1) $\frac{1}{2} + \frac{3}{4} \times 2$	2) $-\frac{2}{3} + \left(\frac{5}{6} - \frac{1}{2}\right)$
3) $\left(-\frac{3}{4} \times 2\right) + \frac{5}{8}$	4) $2 - \left(\frac{7}{8} + \frac{1}{4}\right)$
5) $-1\frac{1}{2} + \left(\frac{3}{4} \times 2\right)$	6) $2\frac{1}{3} + \left(-1\frac{3}{4}\right) \times \frac{2}{5}$
7) $-\frac{7}{8} + \frac{3}{4} \div \left(-\frac{1}{2}\right)$	8) $1\frac{2}{5} - \left(-\frac{3}{10}\right) \times \frac{5}{6}$
9) $-2\frac{1}{2} + \frac{3}{4} \times \left(-\frac{8}{5}\right)$	10) $\frac{4}{9} \div \left(-\frac{2}{3}\right) - 1\frac{1}{6}$

Week 3 - Solving Linear Equations and Inequalities

Solve. Graph solutions to all inequalities on the number line. DO NOT USE A CALCULATOR

1) $3x - 7 = 2x + 5$

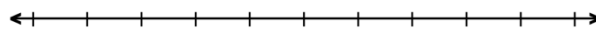
2) $\frac{2x+5}{3} = x - 1$

3) $4x - 9 = 4x + 2$

4) $\frac{1}{4}(x - 10) = \frac{3}{2}(x + 5)$

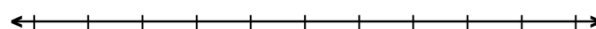
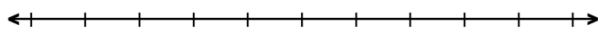
5) $\frac{2x-1}{3} = \frac{x+4}{2}$

6) $-3 \leq \frac{1}{2}x - 5 < 7$



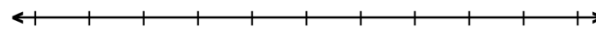
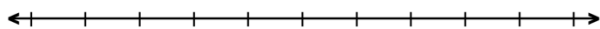
7) $-2 \leq 3x - 1 < 8$

8) $4x - 1 > 3x + 6$ or $\frac{1}{5}x - 10 \leq -15$



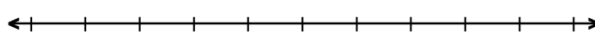
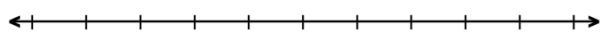
9) $5x + 2 < 3x + 10$

10) $2x - 5 \geq 9$



11) $\left| \frac{3}{4}x + 2 \right| > 17$

12) $|x - 5| \leq 7$

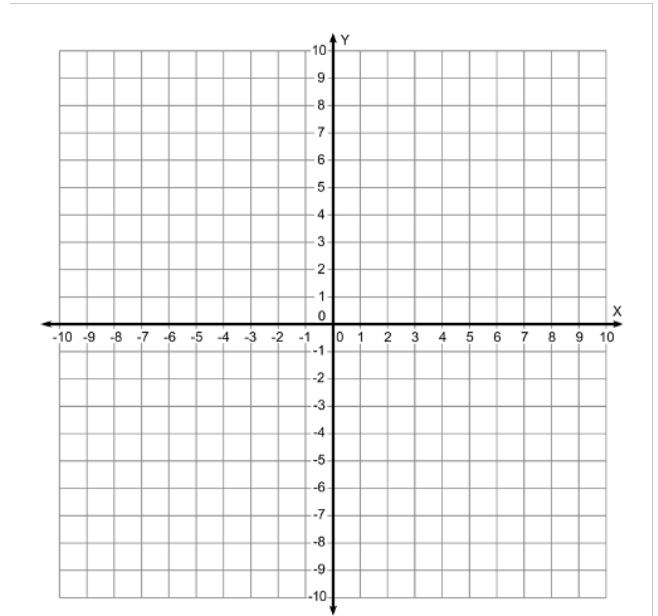


Week 4: Systems of Equations

1) Solve by substitution: $y = 2x + 3$
 $x + y = 12$

2) Solve by elimination: $3x + 2y = 16$
 $-3x + y = -4$

3) Graph and find the solution: $y = x + 1$
 $y = -x + 5$

**4) Word Problem:**

You buy 3 apples and 2 bananas for \$4.50. You buy 2 apples and 4 bananas for \$5.00. Find the cost of each item.

5) Solve: $y = -x + 3$
 $y = 2x - 6$

6) Identify the number of solutions to:
 $2x + 3y = 6$
 $4x + 6y = 18$

7) Solve by any method: $5x + 2y = 20$
 $x - y = 2$

9) Explain why a system has no solution, one solution, or infinitely many.

10) Solve this word problem using a system:

You bought 3 notebooks and 2 pens for \$5.50. Your friend bought 2 notebooks and 4 pens for \$6.00. What is the cost of each item?

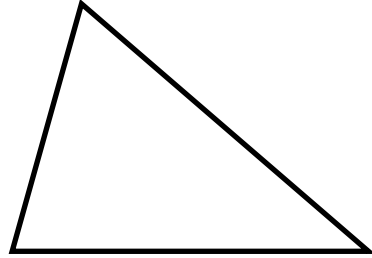
11) The three angles of a triangle add up to 180° . The second angle is 20° more than twice the first angle, and the third angle is 10° less than the second angle.
Form a system of equations to find the measure of each angle.

Let:

x = first angle

y = second angle

z = third angle



12) The **perimeter** of a rectangle is 48 cm. The **length** is 4 cm more than twice the width.
Write a system of equations and find the dimensions of the rectangle.

Let:

L = length

W = width



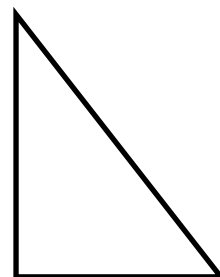
13) In a right triangle, the **hypotenuse** is 5 cm longer than the longer leg, and the shorter leg is 7 cm shorter than the longer leg. The area of the triangle is 60 cm^2 .
Form a system of equations to find the lengths of all sides.

Let:

x = longer leg

y = shorter leg

z = hypotenuse



14) A rectangle is inscribed in a circle of radius 10 cm. The **length of the rectangle is 4 cm more than twice its width.**

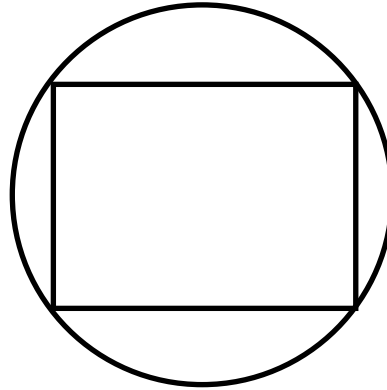
Write a system of equations to find the rectangle's dimensions.

(Hint: The diagonal of the rectangle equals the diameter of the circle.)

Let:

L = length

W = width



15) The perimeter of a parallelogram is **72 cm**. The **base is 6 cm longer than the side**, and the **height is 3 cm less than the side**. The **area** of the parallelogram is **252 cm²**.

Write a system of equations to find the base, side, and height.

Let:

b = base

s = side

h = height



Week 5 - Linear Functions and Inequalities

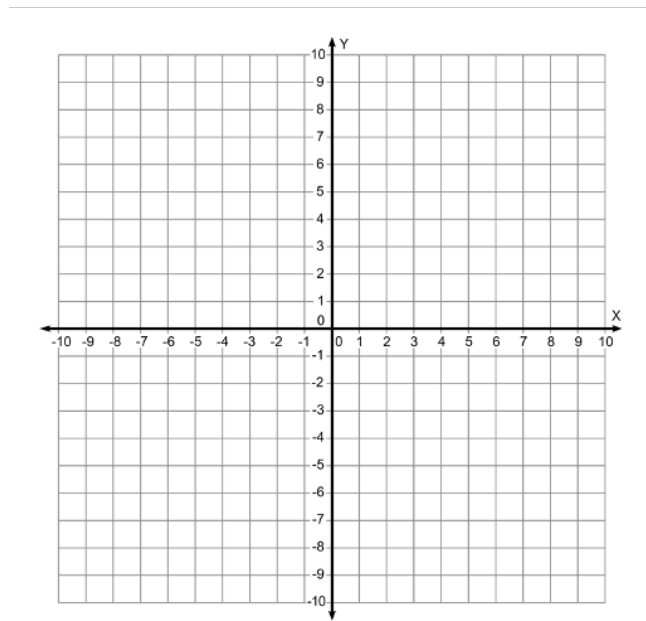
1) Write an equation of a line in slope-intercept form that passes through $(-2, 4)$ and $(3, -1)$

2) Find the x- and y-intercepts of: $2x + 3y = 12$

3) Write the equation of a line with x-intercept = -3 and y-intercept = 5 in slope-intercept form)

4) Graph the line:

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



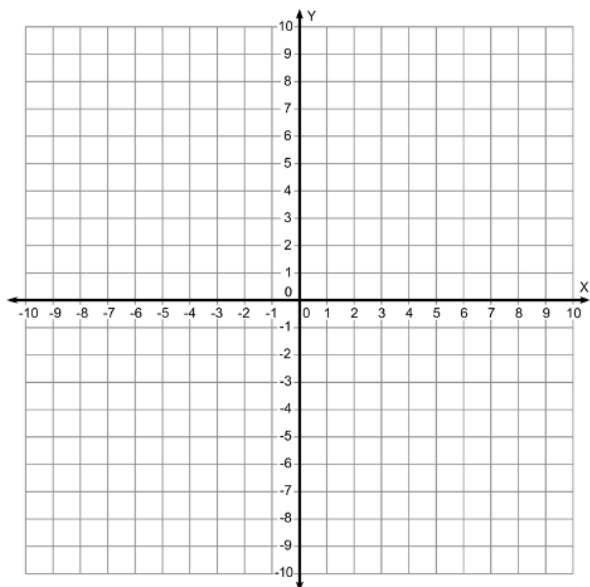
5) Write the equation of a line parallel to $y = 2x - 1$ that passes through the point $(1, 3)$.

6) Write the equation of a line perpendicular to $y = -3x + 2$ that passes through $(0, -1)$.

7) Write the equation of a line in slope-intercept form through $(2, 5)$ with slope 3.

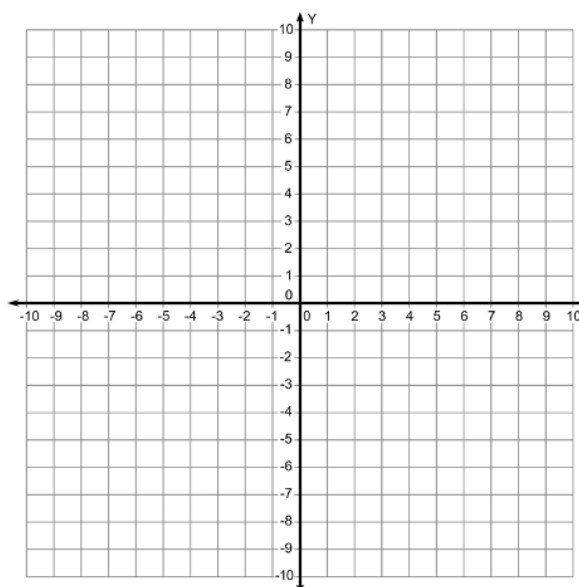
8) Find the slope and y-intercept of $2x - 3y = 6$

9) Graph $y = -2x + 4$ on the coordinate Plane the using y-intercept and slope.



10) Graph $y = \frac{1}{3}x - 2$ by making a table of values.

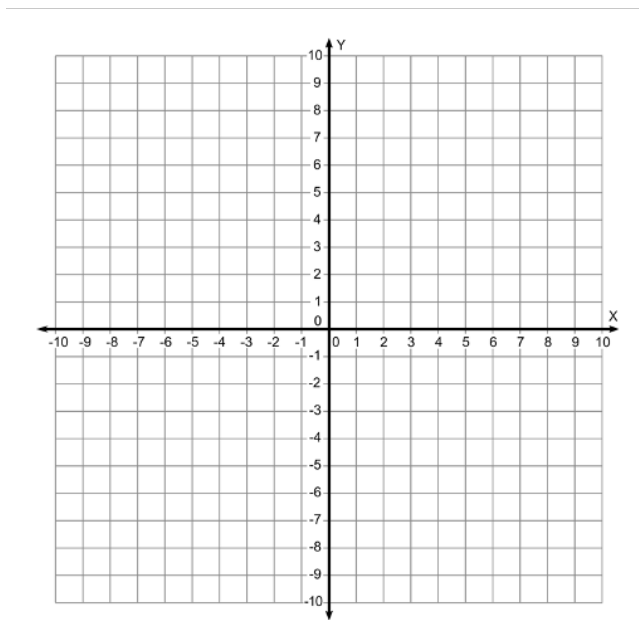
x	y



11) Determine if the point $(3, -2)$ is on the line $y = -x + 1$

12) Determine if the point $(2, -7)$ is a solution to $y < 4x + 10$

13) Graph $y \geq 3x - 8$



14) Solve for y : $4x - 3y = 8$

15) Solve for h : $A = \frac{1}{2}bh$

16) Solve for x : $y = mx + b$

17) Solve for w : $P = 2l + 2w$

18) Solve for x : $2x - 3y + 4z = 12$

Write a linear equation for the table.

19)

x	y
-2	-5
-1	-2
0	1
1	4
2	7

20)

x	y
0	3
2	7
4	11
6	15
8	19

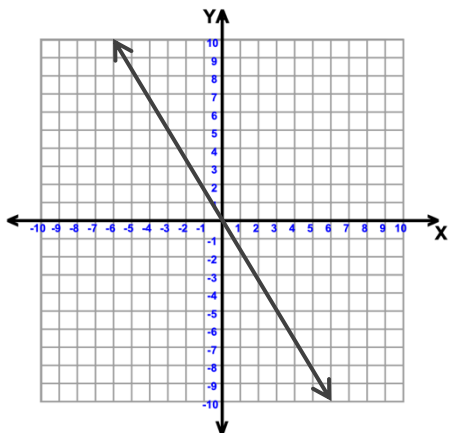
21)

x	y
-2	-5
-1	-2
0	1
1	4
2	7

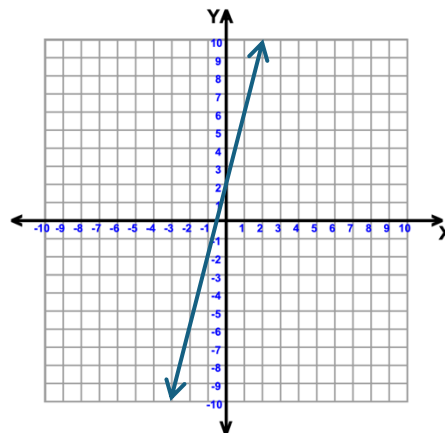
22)

x	y
1	10
3	16
5	22
7	28
9	34

23) Write the equation of the line graphed below.



24) Write the equation of the line graphed below.



Week 6: Functions and Relations**1)** Is either of the following relations a function?

$\{(2,1), (3,4), (2,5), (4,6)\}$

$\{(2,3), (3,5), (4,6), (7,3)\}$

2) Evaluate $y = 3x^2 - 2x + 1$ when

$x = -1, x = 0, x = \frac{1}{2}$

3) Evaluate $y = 2x^2 - 3x + 1$ when

$x = 4, x = -3, x = -\frac{1}{3}$

4) Given $f(x) = 2x + 3$, find

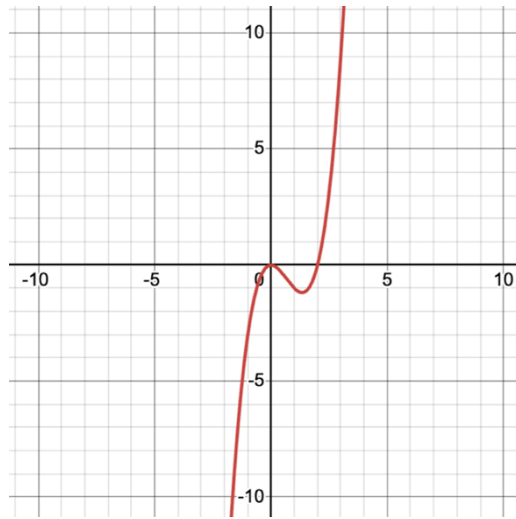
$f(5), f\left(-\frac{3}{4}\right), f(0)$

5) Given $f(x) = 3x^2 + 2x$, find

$f\left(\frac{1}{4}\right), f(1), f(-3)$

6) Given the graph of $f(x)$ to the right, evaluate the following:

- a) $f(0)$
- b) $f(3)$
- c) x when $f(x) = -3$
- d) x when $f(x) = -1$



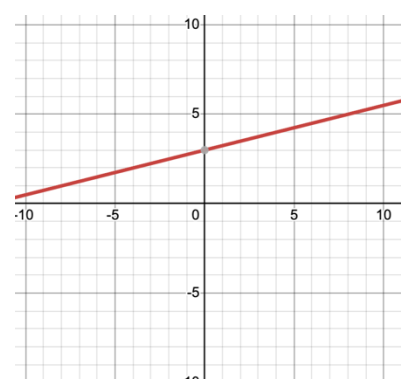
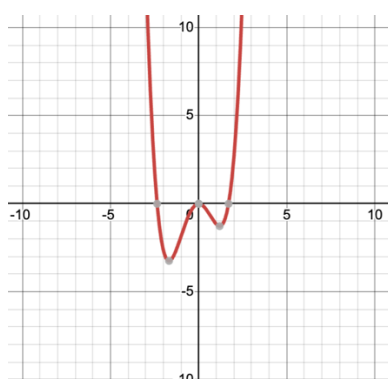
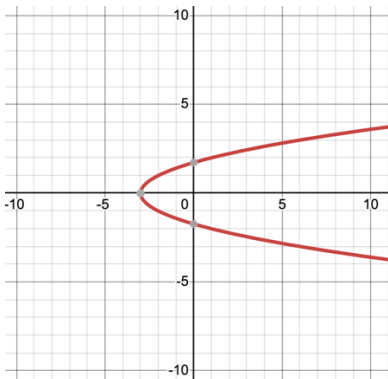
7) Identify if the function is linear or nonlinear: $y = x^2 + 2x + 1$

Make a table of values for this function.

x	y

8) Given $f(x) = 5x - 1$, solve $f(x) = 14$

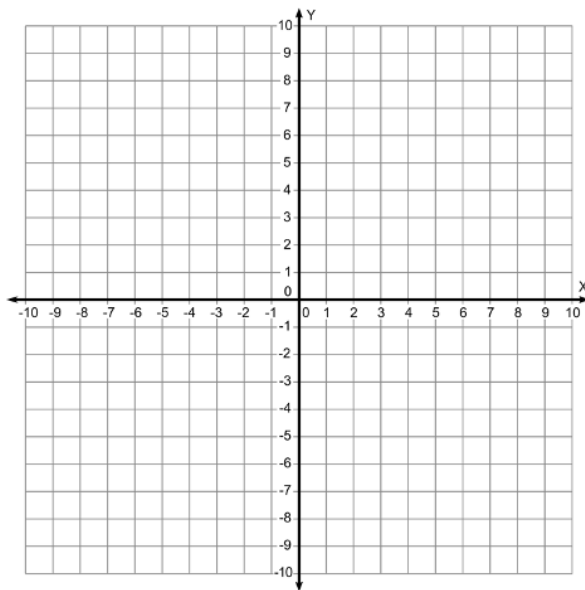
9) Determine if the graph of each relation passes the vertical line test.



Make a Table of Values and Graph each of the following functions.

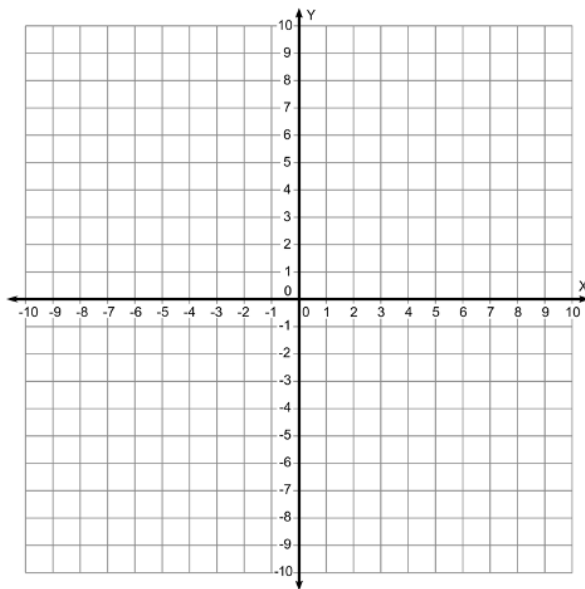
10) $f(x) = x$

x	y



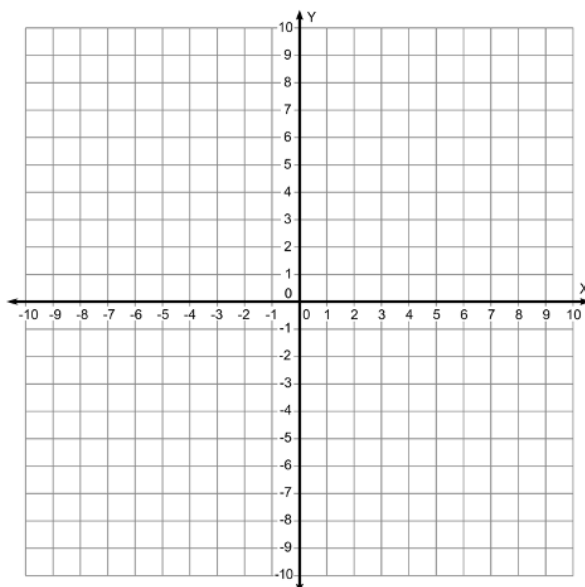
11) $f(x) = 1$

x	y



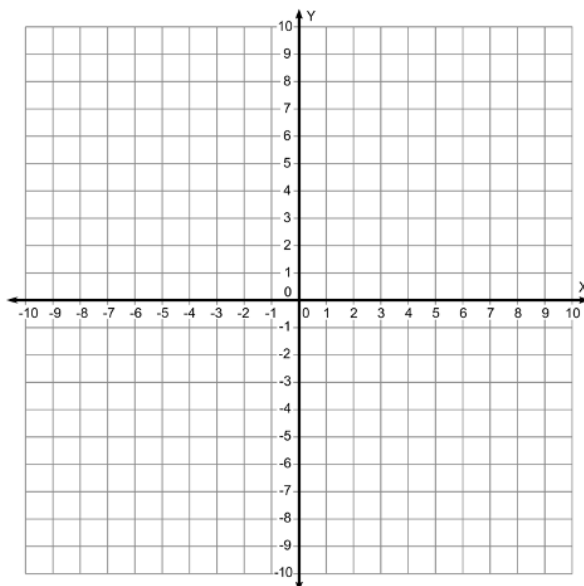
12) $f(x) = x^2$

x	y



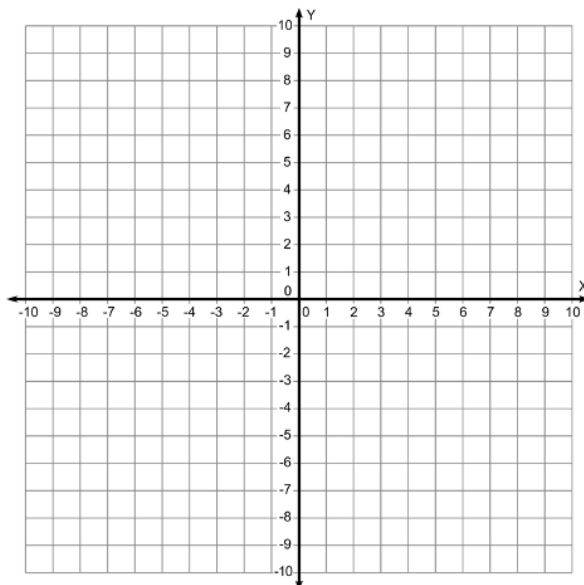
13) $f(x) = |x|$

x	y



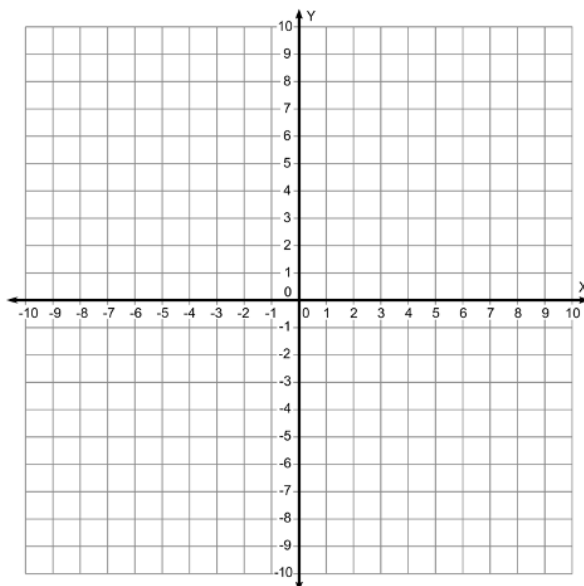
14) $f(x) = 2^x$

x	y



15) $f(x) = \sqrt{x}$

x	y



Week 7: Exponents, Radicals, and Polynomials**Simplify. All answers should include only positive exponents.**

1) $(3x^2)(4x^3)$	2) $\frac{5x^4y^2}{10x^2y}$	3) $(2x^2y)^3$
4) $\sqrt{50}$	5) $\sqrt{8x^2}$	6) $\left(\frac{3x^2}{6x^5}\right)^2$
7) $(4a^{-3}b^2)^2$	8) $\sqrt{49x^4y^6}$	9) $\frac{2x^{-3}y^2}{4x^2y^{-1}}$
10) $\frac{5x^{\frac{3}{2}}y^{\frac{1}{2}}}{10x^{-\frac{1}{2}}y}$	11) $\sqrt{\frac{16x^8}{81y^4}}$	12) $\frac{3}{\sqrt{5}}$

13) $(3x + 4y) + (8y - 9x)$

14) $(x^3 - 7x^2 + 9) + (-8x^2 - 12 + 4x)$

15) $(x - 2)(x - 2)$

16) $(x^2 - 4x - 9)(x + 3)$

17) $(5x^2 + x - 2) + (10x^2 - 3x + 12)$

18) $(2x^2 + 3x - 5) + (x^2 - x + 2)$

19) $(3x^2 - x + 4) - (x^2 + 2x - 1)$

20) $(2x^2 + 3x - 1) - (x^2 - x + 4)$

Week 8: Factoring Polynomials**Factor:**

1) $x^2 + 16x + 28$	2) $3x^2 - 12x$
3) $3x^2 - 9x$	4) $x^2 - 7x + 12$
5) $2x^2 + 14x + 24$	6) $21x^3 - 14x^2$
7) $x^2 + 0x - 16$	8) $x^2 + 8x - 33$
9) $3x^2 + 16x + 5$	10) Is $x^2 + 8x + 15$ factorable? Why or why not?