Skill 1 - Solve Multi-Step Equations

$$3x-(4x+7)=9-3(2x-3)$$

$3x-4x-7=9-6x+9$

$-1x-7=-6x+18$

$+6x \quad +6x$

$5x-7=18$

$+7 \quad +7$

$\frac{5x}{5}=\frac{25}{5}$

$x=5$

Steps:

1) Distribute:
   Multiply the number outside of the () to everything inside (). If there is a negative in front, change ALL signs in the () after it.

2) Combine like terms that are on same side of the = (CLT)

3) Do opposite:
   - Get variable (letters) on one side.
   - Get numbers without variables on other side.

4) Divide by the number with the variable (coefficient). Reduce fraction answers.

Area and Perimeter

Perimeter = Add up all of the sides. Answer is in units ex. $ft.$

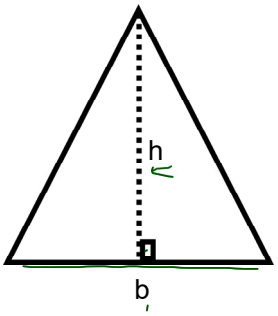
Area = Use the formulas below. Answer is in units squared ex. $ft.^2$

Triangle:

$A = \frac{1}{2}bh$

$b = base$

$h = height$

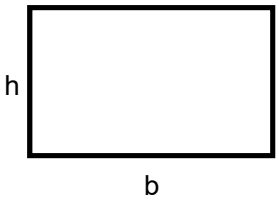


Rectangle/Square:

$A = bh$

$b = base$

$h = height$

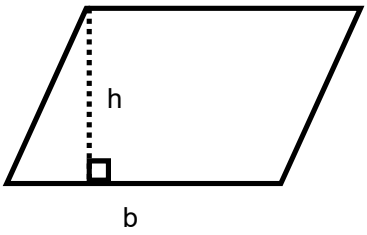


Parallelogram:

$A = bh$

$b = base$

$h = height$



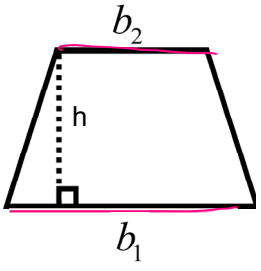
Trapezoid:

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

$h = height$

$b_1 = bottom\ base$

$b_2 = top\ base$



Circle:

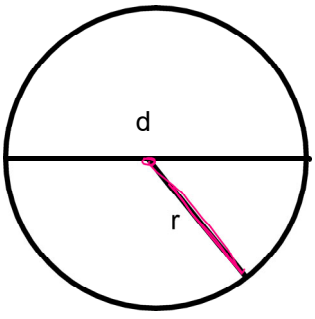
Circumference = distance around circle (like Perimeter)

$C = 2\pi r \text{ or } \pi d$

$A = \pi r^2$

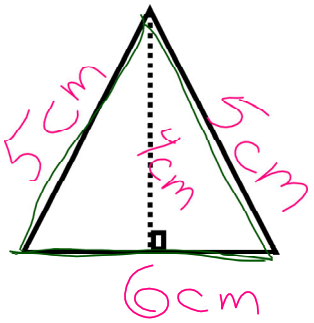
$r = radius$

$d = diameter$



$\pi = 3.14$

Area and Perimeter



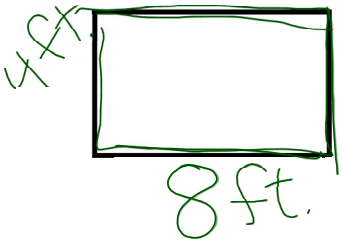
P = 16cm
A = 12cm²

$A = \frac{1}{2}bh$

$A = \frac{1}{2}(6)(4)$

$= 12$

$P = 5+5+6 = 16$

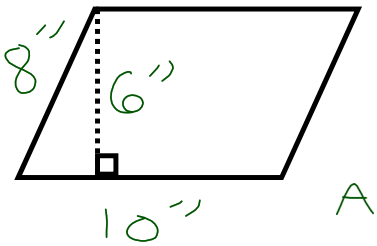


P = 24ft.
A = 32ft²

$P = 8+4+8+4 = 24$

$A = bh = (8)(4)$

$= 32$



P = 36"
A = 60in²

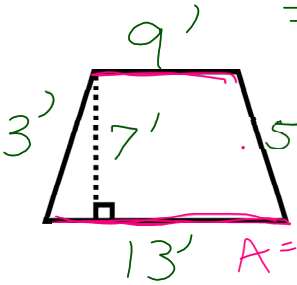
$A = bh$

$= (10)(6)$

$= 60$

$P = 8+8+10+10$

$= 36$



P = 30ft.
A = 77ft²

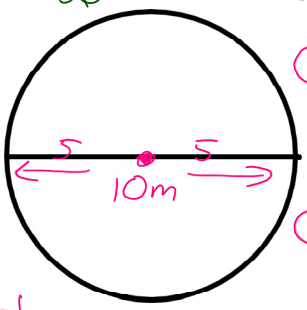
$A = \frac{1}{2}h(b_1+b_2)$

$A = \frac{1}{2}(7)(13+9)$

$= \frac{1}{2}(7)(22)$

$= 77$

$P = 9+13+3+5 = 30$



C
P = 31.4m
A = 78.5m²

$C = \pi d$

$= (3.14)(10)$

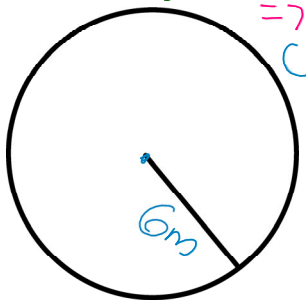
$d = 10$

$r = 5$

$A = \pi r^2$

$= (3.14)(5)^2$

$= (3.14)(25)$



C
P = 37.68m
A = 113.04m²

$C = 2\pi r$

$= 2(3.14)(6)$

$= 37.68$

$A = \pi r^2$

$= 3.14(6)^2$

$= 3.14(36)$

$= 113.04$

Slope

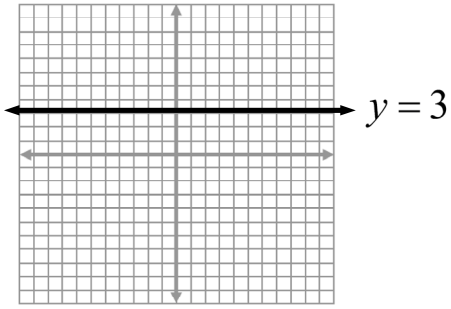
$$\frac{rise}{run} = \frac{vertical\ change}{horizontal\ change}$$

Draw lines with the following slopes:

- positive slope:
- negative slope:

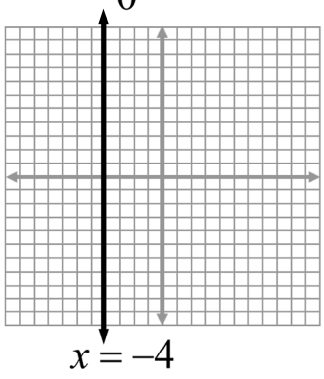
Horizontal Lines:

Slope = $\frac{0}{n}$ = 0



Vertical Lines:

Slope = $\frac{n}{0}$ = undefined



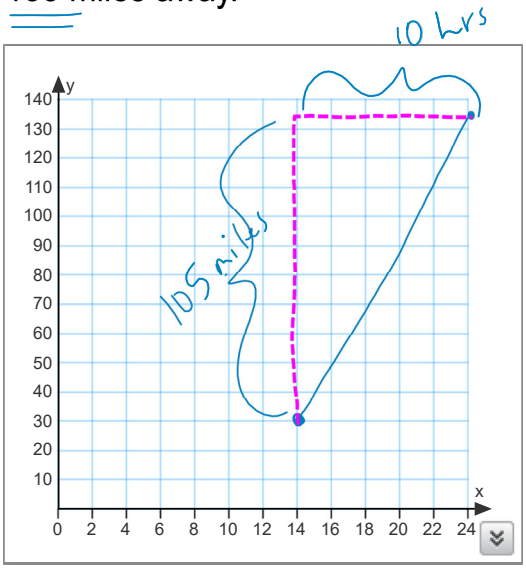
Slope

A ship sails away. After 14 hrs it was 30 miles out.
After 24 hrs. it was 135 miles away.

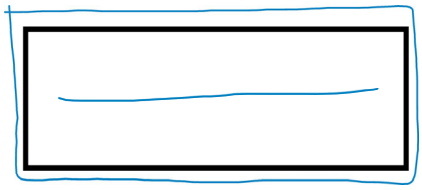
Steps:

1) Write and Graph the 2 points and draw a triangle.

(14, 30) (24, 135)



2) SUBTRACT - top - vertical change
bottom - horizontal change



3) Write the slope as a fraction:

slope = $\frac{rise}{run}$

4) Write as decimal. $top \div bottom$

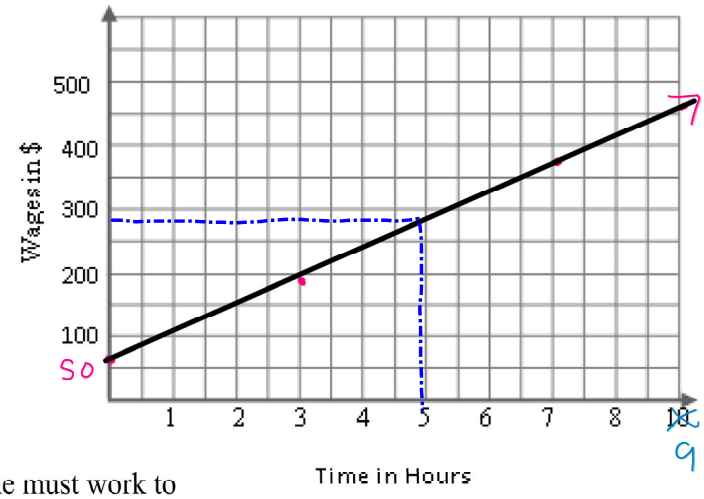
Skill 2 - Graph and Interpret Linear Functions

Fred makes 60 dollars for a house call and $45 an hour to fix electrical.
Make a graph for his wages for up to 10 hours. (w = Wages, h = # of hours)

★PEMDAS★

h	~~w(h)~~ = 45h + 60	w(h)
0	45(0) + 60	60
3	45(3) + 60	195
7	45(7) + 60	375
9	45(9) + 60	465
10	45(10) + 60	510

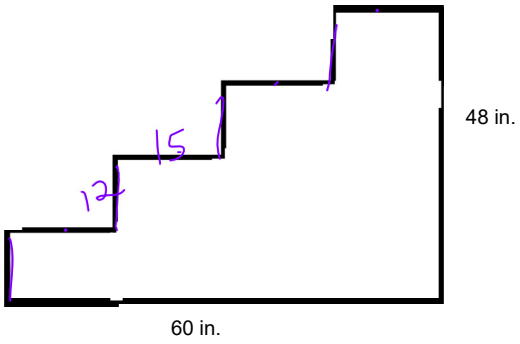
(0, 60)
(3, 195)
(7, 375)
(9, 465)
(10, 510)



Then use the graph to estimate how many hours he must work to make $285. (Make sure you SHOW ON THE GRAPH how you got your answer and write your answer in a COMPLETE SENTENCE.)

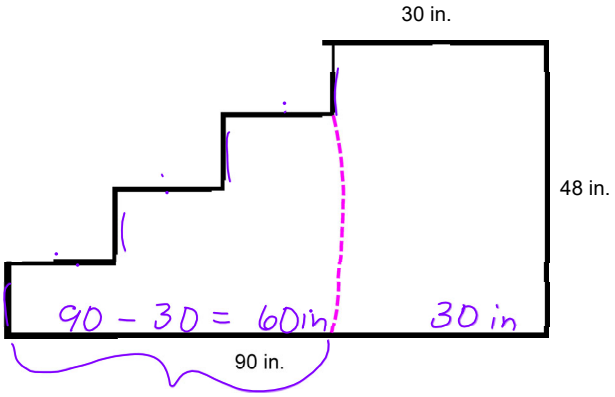
He would have to work about 5 hrs. to make $285.

Slope of a staircase:



1. rise = height divided by # of steps
48 ÷ 4 = 12
2. run = base divided by # of steps
60 ÷ 4 = 15
3. Slope = (reduce answer)

$\frac{12}{15} = \boxed{\frac{4}{5}}$



1. rise = height / # of steps
48 ÷ 4 = 12
2. run =
base - big step
divide answer by steps-1
60 ÷ 3 = 20
3. Slope = $\frac{rise}{run}$ (reduce answer)

$\frac{12}{20} = \boxed{\frac{3}{5}}$

Mean, Median, and Mode

Mean: (average) Add up all of the numbers and divide by how many there are.

Median: (middle) Number in the middle after you put them in order from least to greatest.
*odd - # in the middle
*even - add the two numbers in the middle and divide by 2.

Mode: (most) The number that occurs the most often. Can be no mode if there are no repeats, or more than one if there is a tie for most often.

1) 1, 9, 10, 2, 6, 19, 2

Mean = _____

Median = _____

Mode = _____

2) 2, 6, 9, 6, 4, 7

Mean = _____

Median = _____

Mode = _____

3) 196, 246, 316, 712, 403

Mean = _____

Median = _____

Mode = _____

4) 4, 16, 37, 2, 5, 5, 1, 1

Mean = _____

Median = _____

Mode = _____

Skill 3: Write Equations of Lines Given 2 Points:

x_1, y_1 x_2, y_2

(-4, -6) and (8, 0)

$m = \frac{0 + 6}{8 + 4} = \frac{6}{12} = \frac{1}{2}$

Steps:

1) Find m (slope):

$$slope = \frac{rise}{run} = \frac{y_2 - y_1}{x_2 - x_1}$$

(x_1, y_1) *and* (x_2, y_2)

✳ Reduce your answer! ✳

ex: $\frac{-12}{-4} = 3$

$x \quad y$

$(8, 0) \quad m = \frac{1}{2}$

$y = mx + b$

$0 = \frac{1}{2}(8) + b$

$0 = 4 + b$

$-4 = b$

$y = \frac{1}{2}x - 4$

2) Pick one point:
substitute the values of x, y, and m into the equation:
y = mx + b

3) Solve for b:
multiply mx
add or subtract to get b alone

answer is not a fraction

4) Write the equation:
Substitute your answers for m and b into the equation:
y = mx + b
(x and y stay x and y!)

Skill 4 - Graph Linear Equations

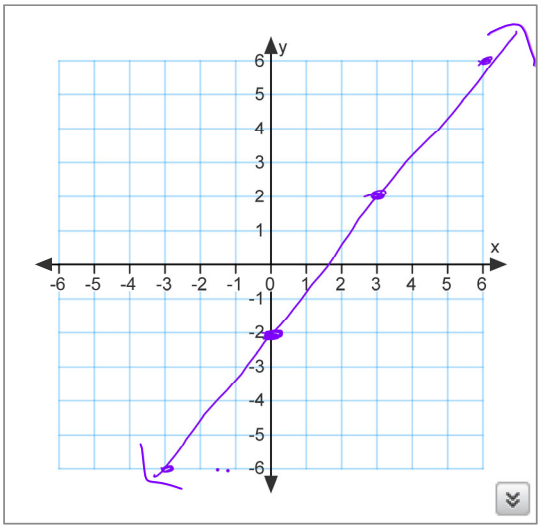
$$4x - 3y = 6$$

$-4x \quad -4x$

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

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

$m = \frac{4}{3} \quad b = -2$



Steps:

1) Add or subtract x (do the opposite) to the other side.

2) Divide everything by the number in front of y

3) Simplify (slope should be reduced, but be a fraction - never a mixed # or decimal

4) Identify the slope and y-intercept

5) Graph
   - start at the y-int.(up or down)
   do rise over run from that point

pos. slope:

neg. slope

Skill 5: Equations of Parallel and Perpendicular Lines

Parallel lines have the **same** slope.

Perpendicular lines have **opposite** (+/-) and **reciprocal** (flip) slopes

1) Write the equation of a line that is parallel to $y = -3x - 2$ that goes through the point (-5, 8).

(//)

x y

$m = -3$

$y = mx + b$

$8 = -3(-5) + b$

$8 = 15 + b$

$-15 \quad -15$

$-7 = b$

$y = -3x - 7$

Steps:

1) Find the slope of the given line.

2) Find the parallel slope (same).

3) Plug x, y, and m into y = mx + b

4) Solve for b:

5) Write the equation (plug m and b into y = mx + b)

Skill 5: Equations of Parallel and Perpendicular Lines

Parallel lines have the **same** slope.

[redacted] have [redacted] and [redacted] slopes

2) Write the equation of a line that is perpendicular to $y = 4x - 1$ that goes through the point (12, -2).

$y = mx + b$

$-2 = \frac{-1}{4}(12) + b$

$-2 = -3 + b$

$+3 \quad +3$

$1 = b$

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

Steps:

1) Find the slope of the given line.

2) Find the perpendicular slope (opposite reciprocal).

3) Plug x, y, and m into y = mx + b

4) Solve for b:

5) Write the equation (plug m and b i + b)

Skill 6 - Proportional Reasoning

1) $\frac{16}{x} = \frac{4}{3}$

$\frac{4x}{4} = \frac{48}{4}$

$x = 12$

Steps:

1) Cross - Multiply

2) Solve for the variable

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

$3(x+2) = 10(x-5)$

$3x + 6 = 10x - 50$

$-3x \quad\quad -3x$

$6 = 7x - 50$

$+50 \quad\quad +50$

$\frac{56}{7} = \frac{7x}{7}$

$8 = x$

1) Use () for + or -

2) Cross Multiply

3) Distribute (don't forget to change the signs if dist. a negative number)

4) Get x on one side (do the opposite)

5) Solve

Skill 6 - Proportional Reasoning

3) John can read 7 pages in 5 minutes. At this same rate, how many pages can he read in 80 minutes?

pages / min: $\frac{7}{5} = \frac{x}{80}$

$5x = 560$

$\frac{5x}{5} = \frac{560}{5}$

$x = 112$ pages

John can read 112 pages in 80 min.

Steps:

1) Write a proportion:

   2 fractions set = to each other.

   Write UNITS!!!!!!!

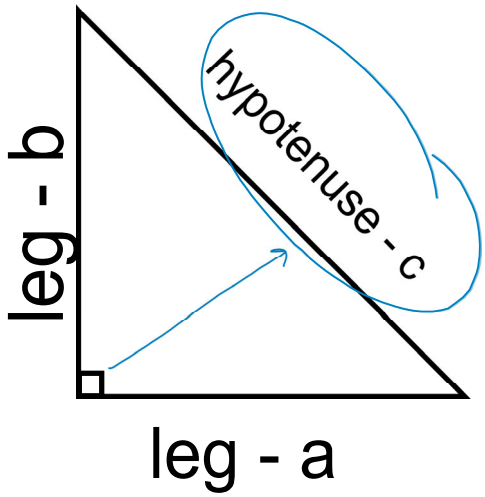
2) Cross multiply

3) Solve

4) Answer the question in a sentence

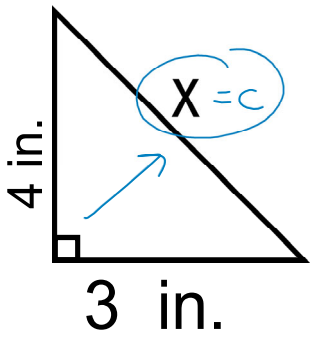
Skill 7 - Pythagorean Theorem

$$a^2 + b^2 = c^2$$



Find the missing side:

1)



$3^2 + 4^2 = x^2$

$9 + 16 = x^2$

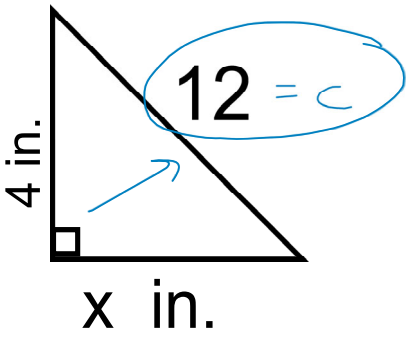
$\sqrt{25} = \sqrt{x^2}$

$5 \text{ in} = x$

Steps:

1) Label a, b, c
2) Plug a, b, c into $a^2 + b^2 = c^2$
3) Square the numbers
4) Add or subtract
5) Take the $\sqrt{}$ Round answer to the nearest tenths. UNITS!

2)



$4^2 + x^2 = 12^2$

$16 + x^2 = 144$

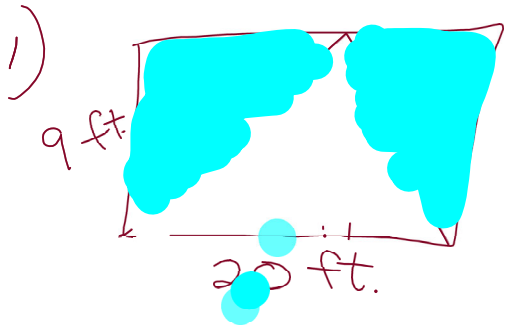
$-16 \quad -16$

$\sqrt{x^2} = \sqrt{128}$

$x = 11.313$

$x = 11.3 \text{ in}$

1)



$A = b \cdot h$

$= 20(9)$

$= 180$

rectangle: $180\ ft^2$

$A = \frac{1}{2}bh$

$= \frac{1}{2}(20)(9)$

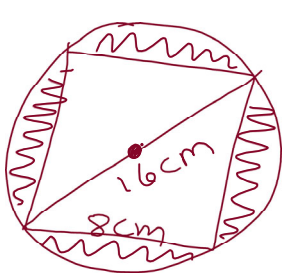
$= 90$

triangle: $90\ ft^2$

Shaded area: $90\ f^2$

$180 - 90 = 90$

2)



$d = 16$
$r = 8$

$A = \pi r^2$
$= (3.14)(8)^2$
$= (3.14)(64)$
$= 200.96 cm^2$

$A = b \cdot h$
$= 8(8)$
$= 64$

circle: $200.96 cm^2$

Square: $64 cm^2$

shaded area: $136.96 cm^2$

$$\begin{array}{r} 200.96 \\ -\ 64.00 \\ \hline 136.96 \end{array}$$

3)

rectangle: 1,000 ft²

circle: 314 ft²

area: 1,314 ft²

$d = 20$

$r = 10$

$A = b \cdot h$

$= (50)(20)$

$= 1000$

$A = \pi r^2$

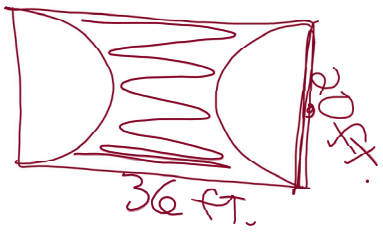
$= (3.14)(10)^2$

$= (3.14)(100)$

$= 314$

$1000 + 314 = 1314$

4)



$A = b \cdot h$

$= (36)(20)$

$= 720$

rectangle: 720 ft²

circle: 314 ft²

shaded: 406 ft²

$720 - 314 = 406$

Skill 8 - Simplifying Expressions with Exponents

Rules:

$x^0 = 1$

$x^1 = x$

$x^2 \bullet x^3 = x^5$ (2+3) Keep base same and add exp.

$(x^4)^5 = x^{20}$ (4·5) Keep base same and multiply exp.

$\frac{x^6}{x^2} = x^4$ (6−2) Keep base same and subtract exp. (top-bottom)

$x^{-3} = \frac{1}{x^3}$ Put a 1 over it, make the exponent positive

Exponents with Coefficients:

$(3x^{-2}y^3)(6x^{-4}y) = \frac{18y^4}{x^6}$

$(3)(6) = 18$

$(x^{-2})(x^{-4}) = x^{-6}$

$(y^3)(y^1) = y^4$

$(3x^4)^3 = 27x^{12}$

$(3)^3 = 3 \cdot 3 \cdot 3 = 27$

$(x^4)^3 = x^{12}$

$\frac{12x^{-4}y^5}{16x^3yz} = \frac{3y^4}{4x^7z}$

$\frac{12}{16} = \frac{3}{4}$

$\frac{y^5}{y^1} = y^4$ (5−1=4)

$\frac{x^{-4}}{x^3} = x^{-7}$ (−4−3)

Skill 8 - Simplifying Expressions with Exponents

1) $\dfrac{x^5 \bullet x^3}{\left(x^{-6}\right)^{-2} \bullet x^0}$

2) $\dfrac{x^{-3} \bullet x}{\left(x^4\right)^{-2}}$

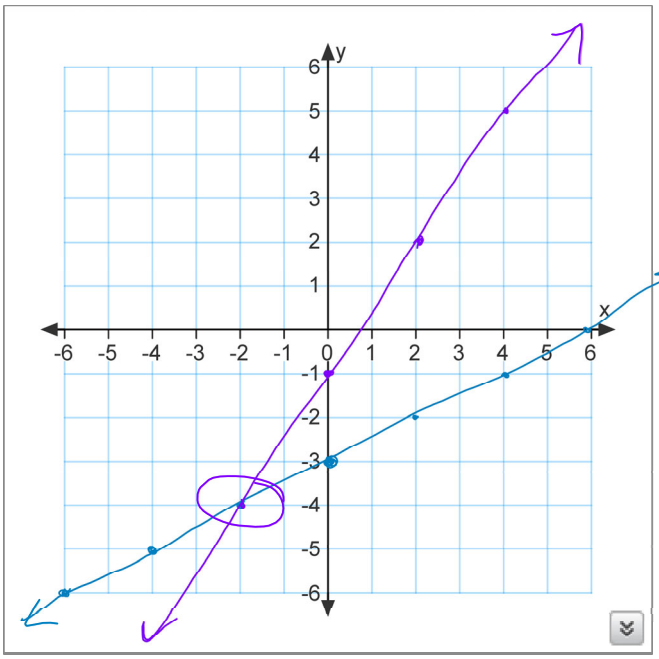
Steps:

1) Multiply Exponents
2) Add Exponents
3) Subtract Exponents(Top - Bottom)
4) If the exponent is negative, put 1 over it, and make it positive.

Skill 9- Solve Systems of Equations by Graphing

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

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



Steps:

1) Make sure both lines are in slope-intercept form.

2) Graph both lines.

3) Write down the point of intersection. (x, y)

4) Check the point in BOTH equations: Plug x and y into each equation and make sure both sides are equal.

Solution: $(-2, -4)$ (x, y)

Check:

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

$-4 = \frac{1}{2}(-2) - 3$

$-4 = -1 - 3$ ✱

$-4 = -4$ ✓

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

$-4 = \frac{3}{2}(-2) - 1$

$-4 = -3 - 1$

$-4 = -4$ ✓

Skill 10-Solve Systems of Equations Algebraically

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

$3(3x+2y=11)$

$14x-6y=-10$

$9x+6y=33$

$(+)$

$23x=23$

$\frac{23x}{23}=\frac{23}{23}$

$x=1$

(x, y)

(1, 4)

$3(1)+2y=11$

$3+2y=11$

$-3 \quad -3$

$\frac{2y}{2}=\frac{8}{2}$

$y=4$

Steps:

1) Multiply one or both equations so that one variable has the same ~~coefficient~~ number and opposite signs.

2) Add like terms together.
ONE of the variables should cancel ou

3) Solve for the remaining variable.

4) Plug your answers into either of the original equations and solve for the other variable.

5) write (x, y)

1) same #?
mult nothing or -1

2) x/y alone

3) does small # go into big # evenly?
mult. one

4) mult. both

* mult. by each other
opp. signs?

Skill 11 - Solve and Graph Inequalities

$3(2x-1)+5-2x \leq 5-(6x-17)$

$6x-3+5-2x \leq 5-6x+17$

$4x+2 \leq -6x+22$

$-4x \quad -4x$

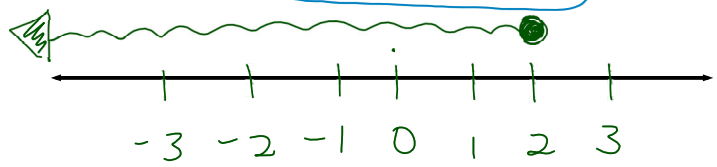
$2 \leq -10x+22$

$-22 \quad -22$

$\frac{-20}{-10} \leq \frac{-10x}{-10}$

$2 \geq x$

$x \leq 2$



Steps:

1) Distribute
2) Combine like terms on the same side
3) Get the variable on one side (do opposite).
4) Solve (get the variable alone.)
5) **Flip the inequality if you multiply or divide by a negative.
6) Rewrite so x is on the left, if necessar
7) Graph:

☆ AF Notes pg 25

Skill 12 - Solve and Graph Compound Inequalities

Solve the inequality and then graph the solution on the number line.

1) $-8 \leq$ [redacted] < 4

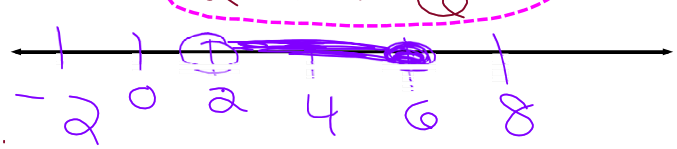
$-10 \quad -10$

$-18 \leq 3n < -6$

$-3 \quad -3 \quad -3$

$6 \geq n > 2$

$2 < n \leq 6$



"And"

Steps:

1) Solve by doing the opposite (add or subtract) to all 3 sides.
2) Divide all 3 sides by the coefficient. If it's negative, flip BOTH inequalities.
3) Graph:

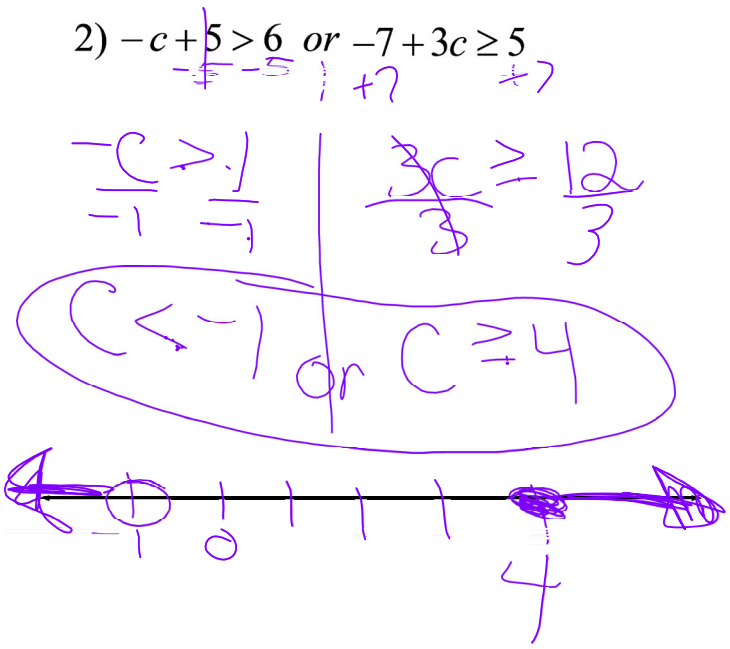
   *open or closed circles

   *shade BETWEEN the numbers

Skill 12 - Solve and Graph Compound Inequalities

Solve the inequality and then graph the solution on the number line.

2) $-c+5>6$ *or* $-7+3c\geq 5$



"Or"

Steps:

1) Solve both inequaities separately.
2) Graph both on the same graph:

   *open or closed circles

   *usually shade both ends.

Graphing Linear Inequalities

$3x - 4y \leq 8$

$-3x \quad -3x$

$\frac{-4y}{-4} \leq \frac{-3x}{-4} + \frac{8}{-4}$

$y \geq \frac{3}{4}x - 2$

Steps:

1. Write in slope-intercept form: y=mx+b.

   *Flip the < or > if you divide by a negative!

2. Graph the line:

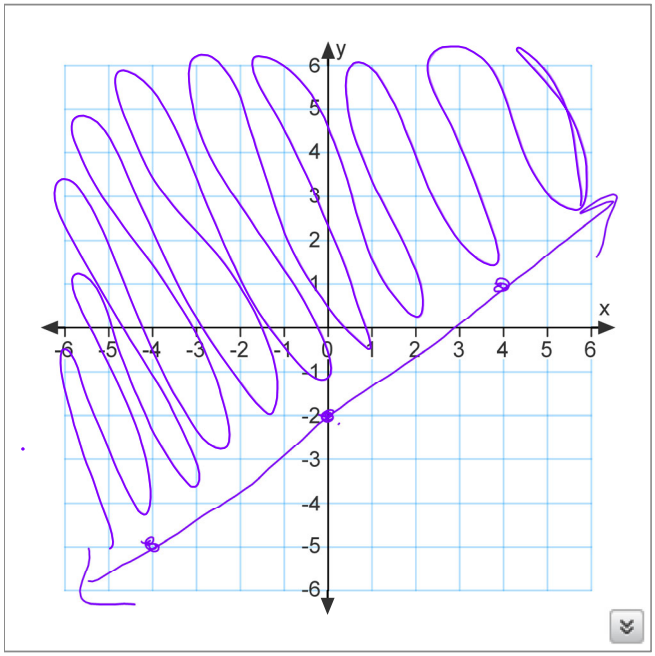
   < or > dotted line

   $\leq or \geq$ solid line

3. Shade

   y< shades down

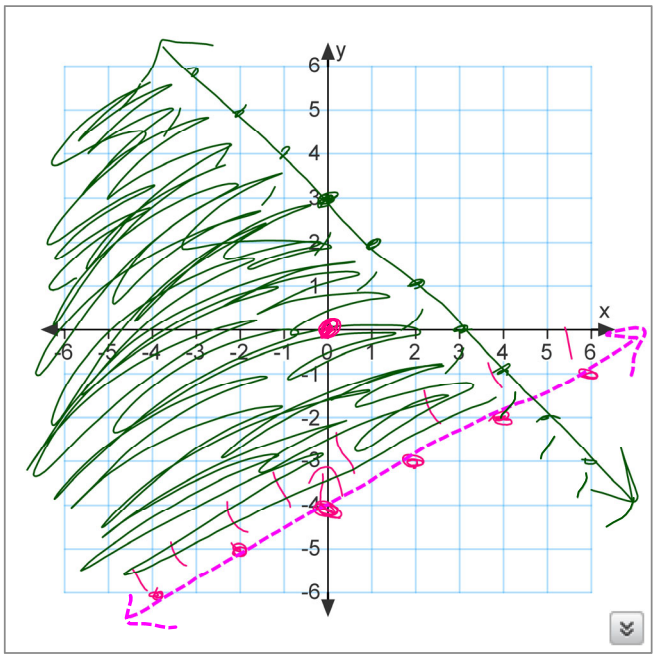
   y > shades up



Skill 13 - Solve Systems of Linear Inequalities by Graphing

$$y \geq \frac{1}{2}x - 4$$

$$y \leq -x + 3$$



Steps:

Graph & shade one line at a time

1) Graph both lines:

$< or > \ dotted \ line$

$\leq or \geq \ solid \ line$

2) Shade up or down from each line:

y > shade up

y < shade down

3) Find where both are shaded.

1st (0,0) 2nd (0,0)

4) Pick a point in the shaded part, not on the line, and check it in both equations.

(0,0)

$0 > \frac{1}{2}(0) - 4$

$0 > 0 - 4$

$0 > -4$

$0 \leq -0 + 3$

$0 \leq 3$

true

Adding and Subtracting Polynomials

1) $(1x^2+4x-8)+(6x^2-8x+6)$

$7x^2-4x-2$

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

$3x^3-13x^2+15x-6$

Steps:

1. If it's subtraction:

Change to addition

Change all of the signs in the ( ) AFTER the subtraction sign to the opposite.

2. Combine Like Terms:

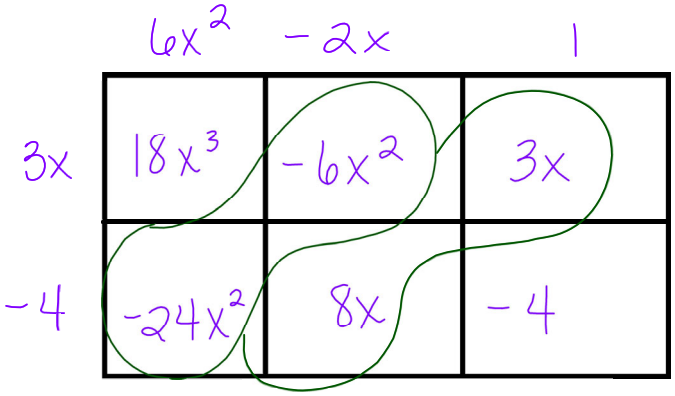
Add coefficients

Keep exponents the same

3. Answer must be written in standard form - highest exponents first.

Skill 14 - Multiply Polynomials

$$(3x-4)(6x^2-2x+1)$$



$18x^3-30x^2+11x-4$

Steps:

1) Multiply in the boxes
(Add exponents)

2) Add like terms
(Exponents stay the same)

3) Answer should be in standard form
(Exponents in order from greatest to least)

Skill 15 - Factor Greatest Common Factor (GCF)

1) $6x^4y^2 - 18x^3y^3 + 3x^2y$

$3x^2y \quad 3x^2y \quad 3x^2y$

$3x^2y(2x^2y - 6xy^2 + 1)$

Check if smallest # goes into others

Steps:

1) Find the GCF.
2) Take out what they all have in common. (Divide by GCF)
3) Write what's left over in the ( ).
   *If nothing is left put a 1
   - divide coefficients
   - subtract exponents

2) $12x^4 - 36x^3 + 18x^2$

$6x^2 \quad 6x^2 \quad 6x^2$

$6x^2(2x^2 - 6x + 3)$

* Never change signs
* check ( ) has nothing in common
* same # of terms in ( ) that started with

Skill 16 - Factor Trinomials

$ax^2 + bx + c$

$3x^2 + 2x - 8$

No GCF

X-box

**Multiply the first and last numbers

$a \cdot c$

-24

-4 and 6

2

b

-24
$-1, 24$
$-2, 12$
$-3, 8$
$-4, 6$

	x	2
$3x$	$3x^2$	$6x$
-4	$-4x$	-8

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

★ First term - first box

★ last term - last box

★ GCF of each column/row

★ GCF gets the sign of the box it's touching

Skill 17 - Factor Completely

$3x^3 - 21x^2 + 36x$

$3x$ $3x$ $3x$

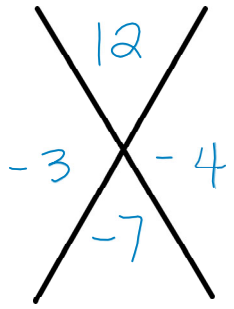
$3x(x^2 - 7x + 12)$

$3x(x-3)(x-4)$

Steps:

1) Take out GCF

2) X-box



	x	-3
x	x^2	$-3x$
-4	$-4x$	12

★ Don't forget GCF in your answer.

Skill 18 - Factor Special Cases

1) $\sqrt{100x^2} - \sqrt{9}$

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

Differences of Squares:

Steps:

1) Set up the answer:

(+)(-)

2) Take the square root ($\sqrt{}$) of the numbers. Don't $\sqrt{}$ the −

3) Divide the exponents by 2.

---

2) $6x^3 - 3x^2 + 8x - 4$

	$2x$	-1
$3x^2$	$6x^3$	$-3x^2$
4	$8x$	-4

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

Factor by Grouping:

Steps:

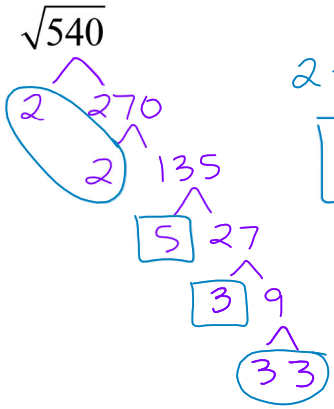
1) Fill all 4 terms into the box. Keep the sign in front of the term!

2) Factor out the GCF for each row and column

3) Write the answer. ( )( )

Skill 19 - Simplifying Radicals

1) $\sqrt{540}$

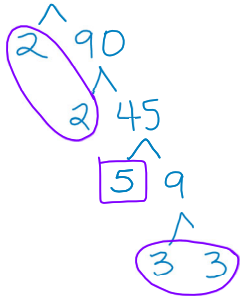


must show this step!

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

$6\sqrt{15}$

2) $3\sqrt{180}$



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

$18\sqrt{5}$

Steps:

1) Prime factor (factor trees).

2) Circle the pairs.

3) For each pair, write one number outside

4) Write the left overs inside

5) Multiply the outside numbers.
Multiply the inside numbers.

Skill 20 - Solve Quadratic Equations by Factoring

$$2x^2 - 3x = 5$$

$-5 \quad -5$

$2x^2 - 3x - 5 = 0$

-10, -5, 2, -3

	$2x$	-5
x	$2x^2$	$-5x$
1	$2x$	-5

$(2x-5)(x+1) = 0$

$2x - 5 = 0$ $\quad$ $x + 1 = 0$

$+5 \quad +5$ $\quad$ $-1 \quad -1$

$\frac{2x}{2} = \frac{5}{2}$ $\quad$ $x = -1$

$x = \frac{5}{2}$ or

Steps:

1) Set equation = 0.

2) Factor (x-box).

3) Set each factor = 0 (make 2 equations).

4) Solve the 2 equations.

Skill 21 - Solve Quadratic Equations by the Quadratic Formula

$$ax^2 + bx + c = 0 \qquad x = \frac{-(b) \pm \sqrt{(b)^2 - 4(a)(c)}}{2(a)}$$

1) $2x^2 - 5x = -3$

$+3 \quad +3$

$2x^2 - 5x + 3 = 0$

$a = 2 \quad b = -5 \quad c = 3$

$$\frac{-(-5) \pm \sqrt{(-5)^2 - 4(2)(3)}}{2(2)}$$

$$\frac{5 \pm \sqrt{25 - 24}}{4}$$

$$\frac{5 \pm \sqrt{1}}{4}$$

$\frac{5+1}{4} = \frac{6}{4} = \frac{2}{3}$ or $\frac{5-1}{4} = \frac{4}{4} = 1$

Steps:

1) Set equation = 0.

2) Identify a, b, and c
watch for negatives!

3) Plug a, b, and c into the equation.

4) Solve (PEMDAS).

5) Write 2 equations - one with + and one with the -.

6) Round answers to nearest hundredth if necessary.

Skill 21 - Solve Quadratic Equations by the Quadratic Formula

$$ax^2 + bx + c = 0 \qquad x = \frac{-(b) \pm \sqrt{(b)^2 - 4(a)(c)}}{2(a)}$$

2) $x^2 + 3x = 6$

$-6 \quad -6$

$x^2 + 3x - 6 = 0$

$a = 1 \quad b = 3 \quad c = -6$

$$\frac{-(3) \pm \sqrt{(3)^2 - 4(1)(-6)}}{2(1)}$$

$$\frac{-3 \pm \sqrt{9 + 24}}{2}$$

$$\frac{-3 \pm \sqrt{33}}{2}$$

$$\frac{-3 + 5.74}{2} = \frac{2.74}{2} = 1$$

or

$$\frac{-3 - 5.74}{2} = \frac{-8.74}{2} = -4.37$$

Skill 22 - Make a Boxplot, find Mean and Range

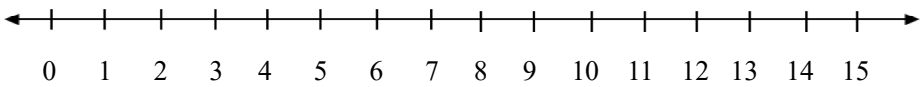
Given data, create a box-and-whisker plot and give the range and mean of the data.

{12, 3, 6, 3, 10, 10, 15, 8, 9, 5}

Min.	Q_1	Median (Q_2)	Q_3	Max.

Range:_____

Mean:_____
(round to nearest tenth)



Steps:

1) Put the numbers in order from smallest to biggest.

2) Min - smallest #

Max - biggest #

3) Median:

*if odd amount:

middle number

*if even amount:

add 2 middle number and divide by 2

4) Q_1 and Q_3 = Find the median of each half.

5) Range = Max - Min

6) Mean = add all of the numbers and divide by how many there are.