Math II Warm-ups

Thursday, Jan 11th, 2018- Located in your packet (complete the front side ONLY).

Travel Time

A travel agent plans trips for tourists from Chicago to Miami. He gives them three ways to get from town to town: airplane, bus, train. Once the tourists arrive, there are two ways to get to the hotel: hotel van or taxi. The cost of each type of transportation is given in the table below.

Transportation Type	Cost
Airplane	$350
Bus	$150
Train	$225
Hotel Van	$60
Taxi	$40

1. Draw a tree diagram to illustrate the possible choices for the tourists. Determine the cost for each outcome.
2. If these six outcomes are chosen equally by tourists, what is the probability that a randomly selected tourist travel in a bus?
3. What is the probability that a person's trip cost less than $300?
4. What is the probability that a person's trip costs more than $350?
5. If the tourists were flying to New York, the subway would be a third way to get to the hotel. How would this change the number of outcomes? Use the Fundamental Counting Principle to explain your answer.

Friday & Tuesday, Jan 12th & 16th, 2018- Located on the backside of yesterday's warm-up

"Happy Birthday to You"

Andy has asked his girlfriend to make all the decisions for their date on her birthday. She will pick a restaurant and an activity for the date. Andy will choose a gift for her. The local restaurants include Mexican, Chinese, Seafood, and Italian. The activities she can choose from are Putt-Putt, bowling, and movies. Andy will buy her either candy or flowers.

Dinner for Two	Activity Cost for Two	Gift Cost
Mexican - $20	Putt-Putt - $14	Flowers - $25
Chinese - $25	Bowling - $10	Candy - $7
Italian - $15	Movies - $20	
Seafood - $18		

3. If all the possible outcomes are equally likely, what is the probability that the date will cost at least $50?

4. What is the maximum cost for the date?

5. What is the minimum cost for the date?

6. To the nearest dollar, what is the average cost for this date?

7. What is the probability that the date costs exactly $60?

8. What is the probability that the date costs under $40?

Monday, January 22nd, 2018-

AAA Travel surveyed 125 potential customers. The following information was gathered.

Eighteen wished to travel to all three destinations. Thirty-four wished to travel to Hawaii and Las Vegas. Twenty-six wished to travel to Las Vegas and Disney World. Twenty-three wished to travel to Hawaii and Disney World. Sixty-eight wished to travel to Hawaii, fifty-three wished to travel to Las Vegas, and forty-seven wished to travel to Disney World.

a) Create a Venn diagram to summarize the information.

b) How many did not wish to travel to any of these destinations?

c) How many wished to travel only to Hawaii?

d) How many wished to travel to Disney World and Las Vegas, but not to Hawaii?

e) How many wished to travel to Disney World or Las Vegas, but not to Hawaii?

f) How many wished to only travel to exactly one of these locations?

Tuesday, January 23rd, 2018-

Thirty-three US cities with large populations were surveyed to determine whether they had a professional baseball team, a professional, football team, or a professional basketball team. The following information was determined.

5 had all three teams
11 had baseball and football
7 had baseball and basketball
9 had football and basketball
16 had baseball
17 had football
15 had basketball

a) Create a Venn diagram to model this information.
b) How many cities had baseball and football?
c) How many cities had baseball or football?
d) How many had exactly two teams?
e) How many cities had both baseball and football but not basketball?

~~Friday, August 11th, 2018-~~

Determine whether theoretical or experimental probability would be appropriate for each of the following. Explain your reasoning:

1. What is the probability of someone tripping on the stairs today between first and second periods?

2. What is the probability of rolling a 3 on six-sided die, then tossing a coin and getting a head?

3. What is the probability that a student will get 4 of 5 true false questions correct on a quiz?

4. What is the probability that a student is wearing exactly four buttons on his or her clothing today?

Wednesday, January 17th, 2018- In packet

1. The two-way frequency table below shows the favorite after-school activities of 50 eighth-grade students.

Based on the data from the table, which conclusion is correct?

	Dance	Basketball	Track	Total
Boys	2	13	10	25
Girls	11	5	9	25
Total	13	18	19	50

A. Boys have a greater preference for track than basketball.

B. Girls have a greater preference for dance than boys.

C. For both boys and girls, track has greater appeal than dance.

D. Dance and track appear to have equal appeal to girls.

2. What is the ***approximate*** difference between the medians of the two sets of data shown below?

Set 1: {2.99, 1.89, 3.99, 7.43}

Set 2: {2.99, 6.32, 2.87, 3.28}

A. 0.21 **B.** 0.36 **C.** 0.73 **D.** 0.94

3. The table below shows the results of a survey on whether people prefer dogs or cats as pets.

	Dogs	Cats	
Men	350	150	*Which statement is true?*
Women	400	300	

A. The percentage of the people who preferred Dogs is greater amongst males than females.

B. The percentage of the people who preferred Cats is greater amongst males than females.

C. The percentage of the men who preferred Cats is greater than the percentage of the women who preferred Cats.

D. The percentage of the men who preferred Dogs is greater than the percentage of the women who preferred Dogs.

4. Mrs. Moore's class researched the relationship between grade level and support for school uniforms. The results are shown in the frequency table below.

	For Uniforms	Against Uniforms	No Opinion
9th Grade	24	21	15
10th Grade	13	30	7
11th Grade	14	9	8
12th Grade	19	22	19

Which grade level has the highest percentage of students for uniforms?

A. 9th grade **B.** 10th grade **C.** 11th grade **D.** 12th grade

Wednesday, Jan 24th, 2018-

1. The probability that a randomly selected American household owns at least one laptop is 35%. The probability that the household owns at least one iPhone is 27%. The probability that the household owns either a laptop or iPhone is 48%. What is the probability that the household owns both a laptop and an iPhone?

2. Thirty slips of paper, numbered 1 to 30, are placed in a container. What is the probability of picking a slip of paper with a number that has a 1 as at least one of its digits or an even number?

3. Suppose we roll a pair of fair six-sided dice. What is the probability that the dice sum up to seven?

Monday, Jan 29th, 2018- IN PACKET

8.1 Algebra Review directly AFTER 8.1 Notes, starts with "Solve each equation for x!"

Tuesday, Jan 30th, 2018-

1. Find $T_{(-1, -5)}(6, 2)$

2. Find h and k if $T_{(h, k)}(3, -2) = (5, 7)$

3. Under a certain translation, T(-1, 4) = (4, 2). Find T(-5, 0) under the same translation.

4. Find $T_{(h, k)}(-8, 2)$ if $T_{(h, k)}(4, -2) = (-2, -3)$

5. Find$_{(h, k)}(n, m)$

Sketch the graph of…

6. x = -2

7. y = 4

8. y = x

Wednesday, Jan 31st, 2018-

Without looking up the answers, try to list all the rules for reflections & rotations assuming (x, y) ⟶ ? :

x-axis: (,)	90 degrees: (,)
y-axis: (,)	180 degrees: (,)
y = x: (,)	270 degrees: (,)
y = -x: (,)	360 degrees: (,)

Point *O* is the center of regular pentagon *JKLMN.* Find the image of the given point or segment for the given rotation. Positive rotations move _____!

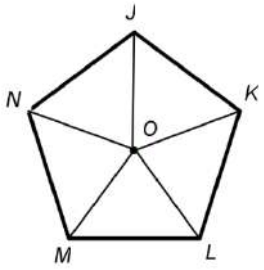
a. $r_{(144°, O)}(K)$

b. $r_{(72°, O)}(N)$

c. $r_{(216°, O)}(ML)$

d. $r_{(360°, O)}(JN)$

e. $r_{(288°, O)}(JO)$



Hint: How much is each "slice" of the pic worth?

Thursday, Feb. 1st, 2018-

1. *ABCD* has vertices *A*(4, 2), *B*(–2, 2), *C*(–4, –2), and *D*(2, –2). Which of the following quadrilaterals is $r_{(180°, O)}(ABCD)$?

a. *ABCD* **b**. *BCDA* **c.** *CDAB* **d.** *DABC*

2. The vertices of $r_{(270°, O)}$ (*DEFG*) have coordinates *D'*(4, 5), *E'*(4, -3), *F'*(-2, -3), and *G'*(-2, 5). What are the coordinates of the vertices of *DEFG*?

3. Δ*FGH* has vertices *F*(–1, 2), *G*(0, 0), and *H*(3, – 1). What are the coordinates of the vertices of $r_{(-270°, G)}(\Delta FGH)$?

Friday, Feb. 2nd, 2018-

1. If the point (2,1) is rotated 90° clockwise then reflected across the y-axis, describe the rotation or reflection that would map the point back onto the original point.

2. If the point (-4, 3) is reflected across the x-axis, then translated left 1 and down 5, and finally rotated 180°, give the coordinates of the new point.

Monday, Feb. 5th, 2018-

1. Point *O* is the center of the square *JKLM.* Find the image of the given point or segment for the given rotation.

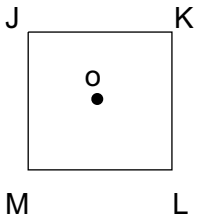
a. $r_{(90°, O)}(K)$

b. $r_{(270°, O)}(M)$

c. $r_{(540°, O)}(ML)$

d. $r_{(-450°, O)}(JK)$

e. $r_{(810°, O)}(KL)$



2. Triangle ABC is located in the third quadrant of a coordinate plane. If triangle ABC is reflected across the *y*-axis to obtain triangle, $A'B'C'$, which quadrant would the triangle now be located?

Tuesday, Feb. 6th, 2018

Given an isosceles triangle with vertices of A (1, 1), B (7, 1) and C (4, 6).

a) Describe one transformation (not a rule) that maps the image onto itself (a rotation of 360° or dilation of 1 cannot be used).

_____

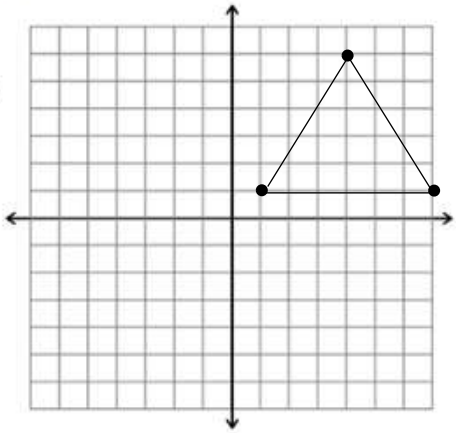
_____

b) Describe multiple transformations (not rules) that maps the image onto itself utilizing 2 reflections and 1 rotation (a rotation of 360° or dilation of 1 cannot be used).

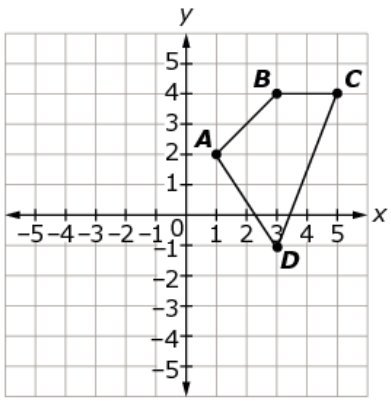
_____

_____

_____



Wednesday, Feb. 7th, 2018



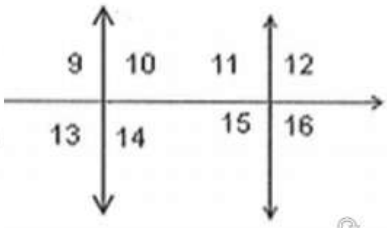
1. Quadrilateral *ABCD* was drawn on a coordinate grid. Select **all** transformations that result in the image of quadrilateral *ABCD* being located in only Quadrant II.

A. Reflect over the *y*-axis and then translate 2 units up
B. Reflect over the *x*-axis and then translate 2 units down
C. Translate 2 units up and then translate 4 units right
D. Reflect over the line $y = -x$ and then translate up 1 unit
E. Rotate 90° counterclockwise about vertex *A* and then translate 5 units left
F. Rotate counterclockwise 180° about the point (0, 2) and translate 1 unit up

2. Trapezoid $M''A''T''H''$ is the image of figure *MATH* after a reflection over the *y*-axis followed by a rotation of 90° clockwise about the origin. The vertices of $M''A''T''H''$ are M'' (1, −5), A'' (−3, −6), T'' (−5, −3), H'' (−3, 1). Find the coordinates of figure MATH.

Tuesday, Feb 13th, 2018

Use the figure at the right to answer problems 1- 8.



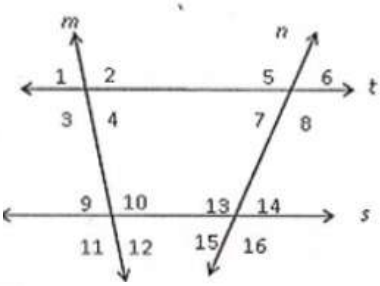
Classify each pair of angles as one of the following:

(a) alternate interior angles (b) corresponding angles

(c) alternate exterior angles (d) vertical angles

(e) supplementary angles (f) none

1. _____ ∠9 & ∠16
2. _____ ∠15 & ∠11
3. _____ ∠10 & ∠15
4. _____ ∠12 & ∠15
5. _____ ∠9 & ∠11
6. _____ ∠9 & ∠15
7. _____ ∠13 & ∠14
8. _____ ∠14 & ∠11



9. $m\angle 2 = 97°$ $m\angle 6 = 83°$

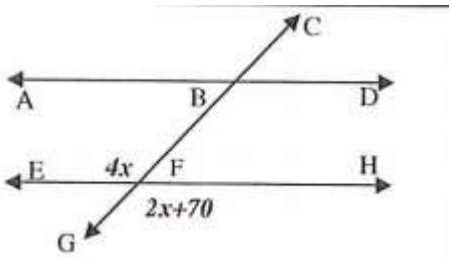
$m\angle 3$ = _____ $m\angle 5$ = _____

$m\angle 10$ = _____ $m\angle 7$ = _____

$m\angle 9$ = _____ $m\angle 16$ = _____

Wednesday, Feb. 14th, 2018

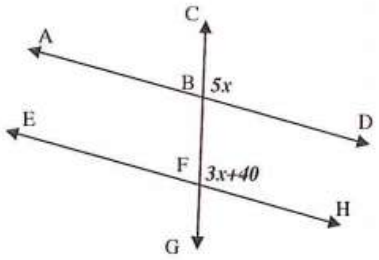
1.



Equation: _____

x = _____ $\angle EFB$ = _____ $\angle GFH$ = _____

2.



Equation: _____

x = _____ $\angle CBD$ = _____ $\angle HFC$ = _____

Monday, Feb. 19th, 2018

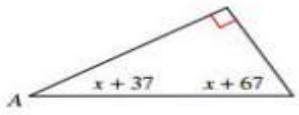
1 – 4: Determine if the following 3 numbers could be the sides of a triangle. Show work to prove why/ why not.

1. 11, 8, 17	2. 4, 8, 14
3. 3, 3, 6	4. 5, 10, 21

Thursday, Feb. 22th, 2018

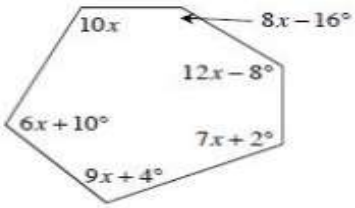
5 – 8: Find x and the measure of the indicated angle(s). Draw a picture if necessary.

5.



x = _____

6.



sum of interior angles = _____

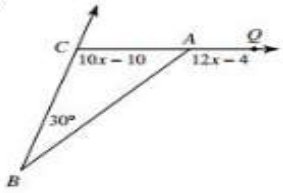
x = _____

7. ∠1 and ∠2 are supplementary angles, m∠1 = 6x + 2, and m∠2 = 3x + 7.

x = _____

m∠1 = _____

8.



x = _____

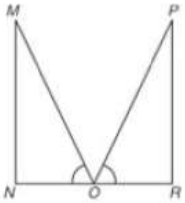
m∠BCA = _____

Monday, Feb. 26th, 2018

What extra information do I need to prove:

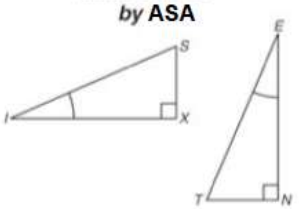
1

$\triangle MNO \cong \triangle PRO$ by SAS



2

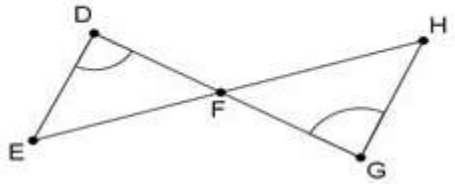
$\triangle SIX \cong \triangle TEN$ by ASA



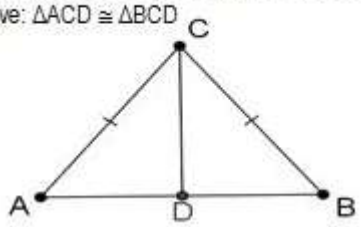
Wednesday, Feb 21st, 2018

Read the given information & mark up the diagram based on what it tells you. USE NOTES! Give a reason to prove the triangles congruent.

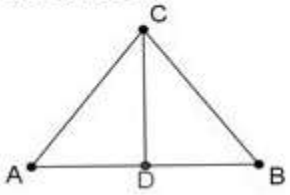
1) Given: $\overline{EH}$ bisects $\overline{DG}$; $\angle D \cong \angle G$
Prove: $\Delta DEF \cong \Delta GHF$



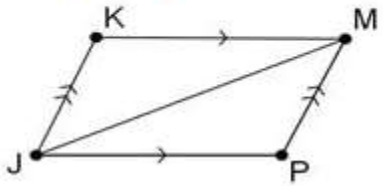
2) Given: $\overline{AC} \cong \overline{CB}$; D is midpoint of $\overline{AB}$
Prove: $\Delta ACD \cong \Delta BCD$



3) Given: $\overline{CD}$ bisects $\angle ACB$; $\overline{CD} \perp \overline{AB}$
Prove: $\Delta ACD \cong \Delta BCD$



4) Given: $\overline{KM} \parallel \overline{JP}$, $\overline{KJ} \parallel \overline{MP}$
Prove: $\Delta KMJ \cong \Delta PJM$



Monday, March 5th, 2018- Solve each proportion.

13) $\frac{4}{n+2} = \frac{7}{n}$

14) $\frac{n}{n-3} = \frac{2}{3}$

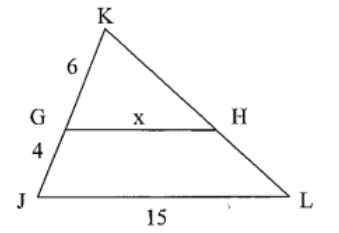
15) $\frac{x-3}{x} = \frac{9}{10}$

16) $\frac{5}{r-9} = \frac{8}{r+5}$

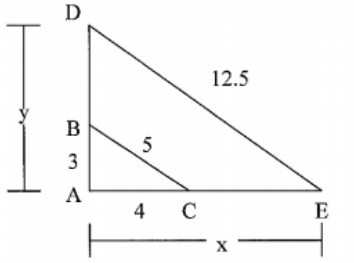
Tuesday, March 6th, 2018

Find the missing side lengths in each pair of similar figures.

1. $\Delta JKL \sim \Delta GKH$



2. $\Delta ABC \sim \Delta ADE$



3. A 6.5 ft tall car standing next to an adult elephant casts a 33.2 ft shadow. If the adult elephant casts a shadow that is 51.5 ft long then how tall is it?

4. Oak Grove and Salem are 87 mi from each other. How far apart would the cities be on a map that has a scale of 5 in : 29 mi?

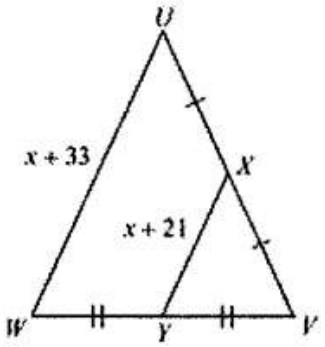
Wednesday, March 8th, 2017

Make a factor tree for the following:

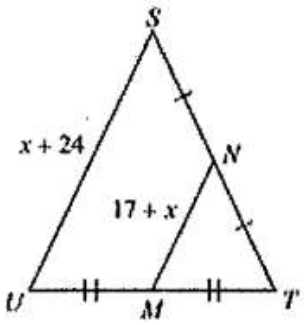
1. 640
2. 336
3. 396

Wednesday, March 7th, 2018

5) Find XY



6) Find NM



7) Find GI

8) Find RS

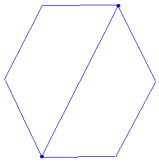
Thursday, March 8th, 2018
Complete 6.2 Application

Tuesday, March 13th, 2018
Simplify.

1. $\frac{\sqrt{8}}{\sqrt{7}}$
2. $\frac{7}{8\sqrt{7}}$
3. $\frac{\sqrt{2}}{\sqrt{6}}$
4. $\frac{\sqrt{21}}{\sqrt{15}}$
5. $-4\sqrt{8} \cdot \sqrt{10}$
6. $-3\sqrt{5} \cdot \sqrt{20}$

Wednesday, March 14th, 2018
Please boot your labtops while completing this warmup…

1. What is the exact side length of a square that has a diagonal length of 12 inches?



ACT Question of the Day: The head of a bolt is in the shape of a regular hexagon with each side 80 mm in length. What is the exact distance between opposite vertices of the bolt?

Thursday, March 15th, 2018

You may write the problem or draw a detail picture before solving.

1. Two joggers run 8 miles north and then 5 miles west. What is the shortest distance, to the nearest tenth of a mile, they must travel to return to their starting point?

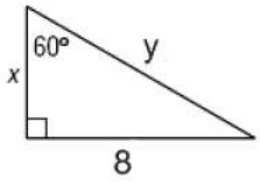
2. To get from point A to point B you must avoid walking through a pond. To avoid the pond, you must walk 34 meters south and 41 meters east. To the nearest meter, how many meters would be saved if it were possible to walk through the pond?

3. Jill's front door is 42" wide and 84" tall. She purchased a circular table that is 96 inches in diameter. Will the table fit through the front door? Explain.

Monday, March 19th, 2018

Find x and y.

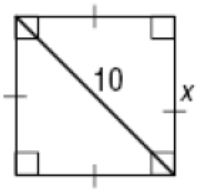
1.



2. An equilateral triangle has a side length of 10 inches. Find the length of the triangles altitude.

3. The altitude of an equilateral triangle is 18 inches. Find the length of a side.

4.



5. The perimeter of a square is 20 inches. Find the length of the diagonal.

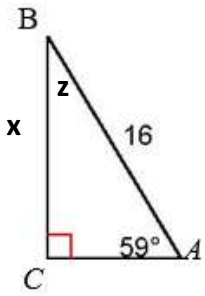
Thursday, March 22nd, 2018

You may draw a DETAILED picture or write the problem.

1. Mr. Basnight wants to hang "icicle" lights and wants them to cover exactly from his roof to the top of his window. He really doesn't want to get up on a ladder to measure so he decides to use some trigonometry. He walks 25 feet away from his house and measures the angle to the top of the window to be 59 degrees. He then measures the angle to the roof to be 66 degrees. How far will the "icicles" need to hang down to cover the area he needs?

Find all missing variables.

2.



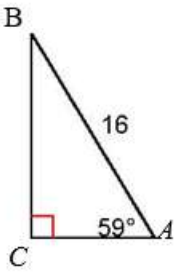
y

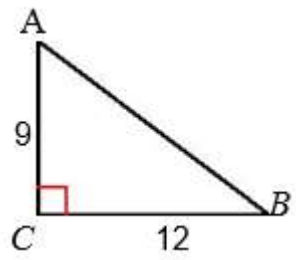
Tuesday, March 20th, 2018

Draw a picture to illustrate the problem and solve.

1. Your spartan teachers go paintballing. Mr. Davenport and Mr. Martin climb up and lie on the top of a shed that is 5 feet off the ground. The others send Mr. Basnight up a tree to hide and he was doing a great job picking off the competition when he stands up and shouts "Here I am… in this tree, hehe!" The guys on the shed decide to just take him out so he doesn't give away their position. They look up at about a 65 degree angle of elevation and know that the tree is 40 feet in front of them. How far will Mr. Basnight fall out of the tree if they blast him?

Find ALL the missing side and angle measures.

2. 

3. 

3. In a right triangle, if tan x = $\frac{3}{4}$, then what is the ratio of cos x?

Thursday, March 29th, 2018

Identify the vertex and axis of symmetry of each equation then write it in standard form.
Graph the equation using key features (must have at least 5 points).

1. $y = -3(x + 1)^2 - 2$

2. $y = ½ (x - 2)^2 + 5$

Monday, April 9th, 2018

Write the following equations in vertex form. Answer the hints for guided help…

1. $y = 3x^2 + 6x + 1$

2. $y = -x^2 + 10x - 28$

a. What is vertex form?
b. What is the vertex of my equation?
c. What is the "a" value?
d. Plug in.
e. Check to make sure the graphs match.

Identify the vertex and axis of symmetry of each equation then write it in standard form.
Graph the equation using key features (must have at least 5 points).
Write the following equations in standard form. Check your answers!

3. $y = -2(x - 4)^2 + 2$

4. $y = 4(x - 1)^2 - 2$

Tuesday, April 10th, 2018

Write the following equations in standard form. Graph & label KEY features.

1. $y = 2(x - 3)^2 - 4$

2. $y = -(x - 4)^2 - 9$

3. The profit, P, a company makes depends on the ticket price, t, they charge.
   $P = -15t^2 + 600t + 50$
   a) What ticket price yields the maximum profit?
   b) What is the maximum profit?

Wednesday, April 11th, 2018

1. Jason jumped off of a cliff into the ocean in Acapulco while vacationing with some friends. His height as a function of time could be modeled by the function $h(t) = -16t^2 + 16t + 480$, where t is the time in seconds and h is the height in feet.

   a. How long did it take for Jason to reach his maximum height?

   b. What was the highest point that Jason reached?

   c. Jason hit the water after how many seconds?

Friday, April 13th, 2018

1. Write the following in standard form. Find all important characteristics of the function and Draw an accurate sketch. $y = -2(x - 1)^2 + 3$

2. If a toy rocket is launched vertically upward from ground level with an initial velocity of 128 feet per second, then its height *h* after *t* seconds is given by the equation $h(t) = -16t^2 + 128t$ (if air resistance is neglected).

   a. How long will it take the rocket to return to the ground?
   b. After how many seconds will the rocket be 112 feet above the ground?
   c. How long will it take the rocket to hit its maximum height?
   d. What is the maximum height?

Monday, April 16th, 2018

★ You and a friend are hiking in the mountains. You want to climb to a ledge that is 20 ft. above you. The height of the grappling hook you throw is given by the function $h(t) = -16t^2 - 32t + 5$. What is the maximum height of the grappling hook? Can you throw it high enough to reach the ledge?

★ One of the games at a carnival involves trying to ring a bell with a ball by hitting a lever that propels the ball into the air. The height of the ball is modeled by the equation $h(t) = -16t^2 + 39t$. If the bell is 25 ft. above the ground, will it be hit by the ball?

★. An amateur rocketry club is holding a competition. There is cloud cover at 1000 ft. If a rocket is launched with a velocity of 315 ft/s, use the function $h(t) = -16t + vt + h_0$ to determine how long the rocket is out of sight.

$h(t) = -16t^2 + vt + h_0$

Tuesday, April 17th, 2018

Refer to "Review Solving Quadratics Worksheet" in your packet.
Complete #1-10.

…after quadratic formula towards the end of your packet.

Looks like:
Solve by Factoring.

1. **$x^2 - 64 = 0$ etc…**

Wednesday, April 18th, 2018

1. Write a rule for a quadratic function with a graph that has x-intercepts (-2, 0) and (8, 0) and y-intercept (0, 8).

Solve by using the best method for each problem.

2. $5x^2 - 6x + 1 = 0$
3. $25x^2 = 9$
4. $x^4 - 10x^2 + 16 = 0$

Thursday, April 19th, 2018

<u>Solve</u> by completing the square. Use the vertex, AOS, x-intercepts & y-intercept to draw an accurate sketch of the graph.

1. $3p^2 = -12p - 9$

2. Consider the system of equations: $y = 2x^2 + 14x - 15$ and $y = 3x + 25$

a. Illustrate with a graph what you expect to see.

b. Find a **solution** to the system of equations.

Wednesday, November 8th, 2017

Each year, Enloe's Rock the Vote committee organizes a public rally. Based on previous years, the organizers decided that the Income from ticket sales, I(t) is related to ticket price *t* by the equation $I(t) = 400t - 40t^2$. *Cost* C(t) of operating the public event is also related to ticket price *t* by the equation $C(t) = 400 - 40t$.

1. What ticket price(s) would generate the greatest income? What is the greatest income possible? Explain how you obtained the value you got.

Ticket price(s) _____ Income _____

2. For what ticket price(s) would the operating costs be equal to the income from ticket sales? Explain how you obtained the answer.

3. Which of the following rules would give the predicted profit *P(t)* as a function of the ticket price?

a. $P(t) = -40t^2 + 440t - 400$
b. $P(t) = -40t^2 - 440t - 400$
c. $P(t) = -40t^2 - 360t + 400$
d. $P(t) = -40t^2 - 360t - 400$
e. $P(t) = 40t^2 - 440t + 400$

Monday, November 13th, 2017- Wednesday, November 15th, 2017

Review #1-3, ½ sheets available for pick up

Monday, November 20th, 2017

Review #4- ½ sheet available for pick up

In addition, please complete the following on the back of the page…

Determine whether each equation is true or false using the properties of exponents. If false, describe at least one way to make the math statement true.

Without a calculator!

a. $\sqrt{32} = 2^{\frac{5}{2}}$

b. $16^{\frac{3}{2}} = 8^2$

c. $4^{\frac{1}{2}} = \sqrt[4]{64}$

d. $2^8 = \left(\sqrt[3]{16}\right)^6$

e. $\left(\sqrt{64}\right)^{\frac{1}{3}} = 8^{\frac{1}{6}}$

Wednesday, May 3rd, 2017

Write the equation of each situation and solve.

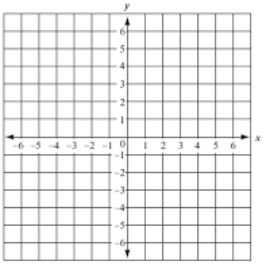
1. The note played by each pipe in a pipe organ is determined by the frequency of vibration of the air in the in the pipe. The fundamental frequency, F, of vibration of air in an organ pipe is inversely proportional to the length, L, of the pipe. Find the fundamental frequency of a 1.6 foot pipe if the fundamental frequency of an 8-foot pipe is 64 vibrations per second.

2. The electrical resistance of a wire varies directly as its length and inversely as the square of its diameter. A wire with a length of 200 inches and a diameter of one-quarter of an inch has a resistance of 20 ohms. Find the electrical resistance in a 500 inch wire with the same diameter.

Friday, May 5th, 2017

Answer each of the following based on the equation given.

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



1. Graph using at least 3 points from the table of values.
2. Vertex: _____
3. Axis of Symmetry: _____
4. Domain: _____
5. Range: _____
6. x-intercept(s) : _____
7. y-intercept: _____
8. Interval of Increase: _____
9. Interval of Decrease: _____

10. End Behavior: $x \to -\infty$ _____ & $x \to \infty$ _____
11. Even, Odd, or Neither? How do you know? Prove using two different methods. _____

12. Find $f^{-1}(x)$:

13. Is the inverse a function? _____ How do you know?