

Name Mrs Snow

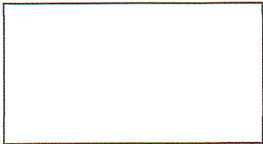
PD May 2013

Round One: Exponents

Show all work

1. A rectangle has the following dimensions:

$$3x^3y^{-4}z^3$$

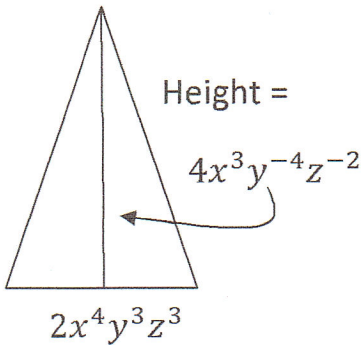


$$-5x^4y^2z^{-3}$$

What is the Area of the rectangle?

$$A = -\frac{15x^7}{y^2}$$

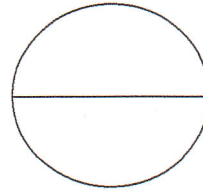
2. A triangle has the following dimensions.



What is the area of the triangle?

Remember!
no work
round it!

3. A circle has a diameter of $6x^2y^3$



a. What is the circumference in terms of pi?

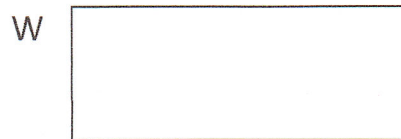
$$C = 6x^2y^3\pi$$

B. What is the area in terms of pi?

$$A = 9x^4y^6\pi$$

4. A rectangle has an area of $6x^4y^2z^8$

And a length of $-2x^2y$. What is the width?



$$W = -3x^2yz^8$$

5. Simplify completely:

$$\frac{(-5x^4y^2z^3)(3x^3yz^3)}{(3x^3y^{-4}z^3)}$$

$$= -5x^4y^7z^3$$

Round Two: Probability and Inequalities

Show All Work

1. Ashley bet her friends she could roll double sixes on a pair of dice on the first roll. What is the probability of this happening?

$$\frac{1}{36}$$

2. Julian thinks he can beat the house in Vegas so he thinks he can roll a seven on two dice at craps.

a. How many different combinations can be thrown on two dice?

$$36$$

b. How many combinations can be thrown to roll 7? List them:

Die #1 Die #2

6 combinations

What is the probability of throwing a 7?

$$P(7) = \frac{1}{6}$$

3. Betty makes really cute hair bows for dance teams. Each hair bow has ribbon, one charm and glitter on it. She offers an array of eight different colors of ribbon, with five different charms choices and 4 colors of glitter. How many combinations of hair bows can she offer to her buyers?

$$160$$

4. Jeffery wants to buy a graduation presents for his friends. He needs to buy 4 presents and he can spend at most \$ 87. He wants to buy each of them the same thing. Write an inequality to show this and solve it to determine the most he can spend on each present.

$$\$21.75 \text{ or less for each gift}$$

5. The whole class (y) wants to buy their favorite teacher, Mrs. Snow a present. They want to spend at least 2 dollars more than three times the amount spent by the other MM class (x). Write an equation for this.

$$C = 3x + 2$$

If the other class spent \$20, can this class spend \$60 to fulfill their requirement?

No because ... ? ☺

Round Three: Quadrilaterals and Circles

Show all work

1A. Paige has a square flower garden with an area of 144 sq ft. She has the garden edged in very expensive border bricks. How many feet of border bricks does she have?

$$48 \text{ ft}$$

1B. She wants to redesign her back yard to have a circular garden. If she uses all the bricks to border the new circular garden, what will the radius of the new garden be?

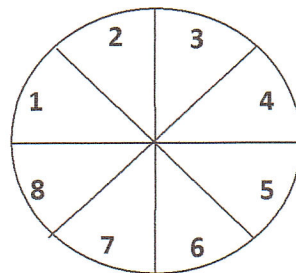
$$r \sim 7.64 \text{ ft}$$

1C. What will be the area of her new garden?

$$A \sim 183.35 \text{ ft}^2$$

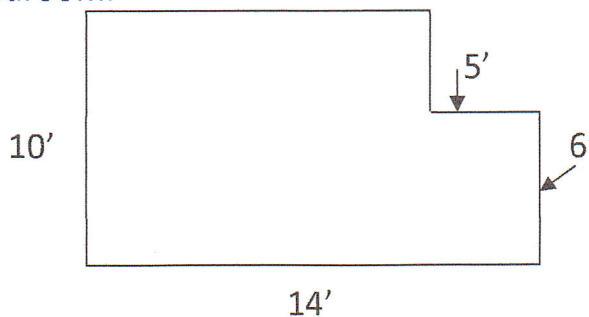
2. Zach has offered to help make a prop for the half time show for the school football games. The theme is "Wheel of Fortune". He must paint a circular prop that is divided into eight equal sections. Each odd numbered section will be painted blue. The circle has a diameter of 15 feet. A gallon of paint will cover 100 square feet.

He needs to paint each section with three coats of paint. How many total square feet are going to need to be painted blue?



$$\sim 2651 \text{ ft}^2 \text{ painted blue}$$

3A. Brianna had a habit of spilling red soda on her bedroom carpet so her family wants to tile her floor. Below is a diagram of her bedroom:



If they use tiles that are one foot square, how many tiles will they need?

$$120 \text{ tiles}$$

3B. If each tile costs \$2.98, how much will the tiles cost?

$$\$357.60$$

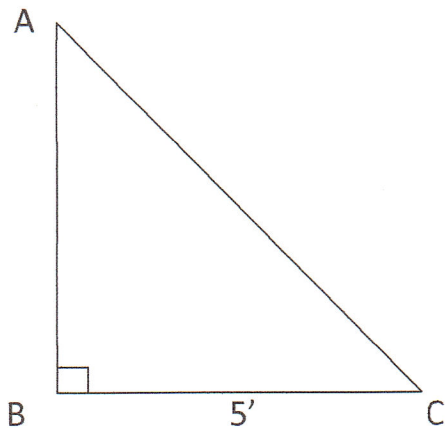
3C. If there is a 6.25% sales tax on the tiles, how much tax will they pay?

$$\$22.35 \text{ tax}$$

Round Four: Triangles

Show all work

1. Alex has to build a triangular brace for a prop for the Maverick half time show for the football games. Angle C is 60 degrees.



- A. How long is side AC?

$$= 10 \text{ ft}$$

- B. How long is side AB?

$$= \sim 8.66 \text{ ft}$$

- C. What is the area of the brace? $\sim 21.65 \text{ ft}^2$

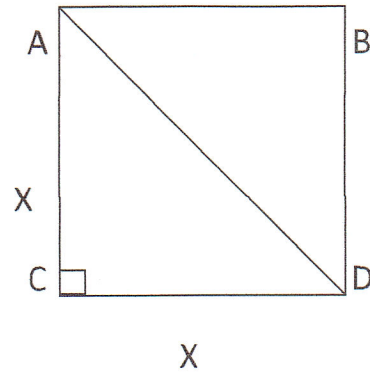
2. For a second prop, Jackson must make a different triangular base that has the same angles as the brace in problem #1.

If side AB is 24':

- A. How long is side BC to the hundredths place? $\sim 13.86 \text{ ft}$

- B. How long is side AC to the hundredths place? $\sim 27.71 \text{ ft}$

3. Isabella has to walk through a square park to get to work. She can either walk along the diagonal of the park, or use the perimeter edges. The park is shown below:



- a. Which of the following methods or formulas can be used to find the diagonal?

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

2. $2x^2 = c^2$

3. $x, x, x\sqrt{2}$ 45, 45, 90

4. All of the above

5. None of the above

- b. If $x = 15$ meters, how long is the diagonal?

$$\sim 21.21 \text{ m}$$

- c. If the diagonal is 25 meters, what is the length of the sides?

$$\sim 17.7 \text{ m}$$

- d. Using your answer in C., how much longer is it to walk the perimeter from A to C to D than to walk the diagonal?

$$10.4 \text{ meters longer}$$

Round Five: Quadratics

Show all work

Given the equation

$$0 = 2x^2 + 8x + 4$$

1. What is the y intercept? (0,4)
 2. What is the axis of symmetry? $X = \underline{-2}$
 3. What is the vertex? (-2, 4)
- What is the discriminant? 32

4. How many solutions does this quadratic have? 2

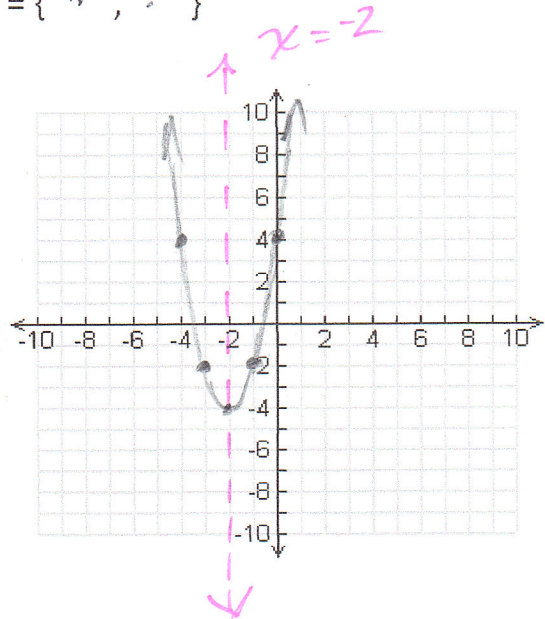
5. and 6. Graph this quadratic on the graph provided and create a table of values. There must be two points on each side of the axis of symmetry and the vertex. CLEARLY MARKED!!!!

x	y
-4	4
-3	-2
-2	4
-1	-2
0	4

(← vertex)

7. Approximately what are the roots?

$$X = \{-3.5, -0.5\}$$



8. If the value of "c" is changed to -3, the graph will

Shift down 7 units

9. If the value of "c" is changed to 6 the graph will

Shift up 2 units

10. If the value of "A" is changed to $\frac{1}{2}$ the graph will

* gets wider

11. If the value of "A" is changed to 3 the graph will

gets narrower

* Remember fat-flat-fractions

Round Six: Quadratics 2

Show All Work

1. Factor the following quadratic:

$$0 = 3x^2 + 10x + 8$$

$$a = 3 \quad b = 10 \quad c = 8$$

Write the factors here

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

Write the zeros here:

$$x = \left\{-2, -\frac{4}{3}\right\}$$

The Quadratic Formula:

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

2. Using the Quadratic Formula, find the solutions for the following quadratic:

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

$$a = 2 \quad b = 6 \quad c = -3$$

By breaking apart the formula, show each step of the process:

a. What is $b^2 - 4ac$? 60

b. What is the square root of your answer from above? (round to nearest 100th)

7.75

c. what is $2a$? 4

d. What is the opposite of our b coefficient? -6

e. Put it back together: $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Add answer d to answer b. Then divide by answer c.

.4375

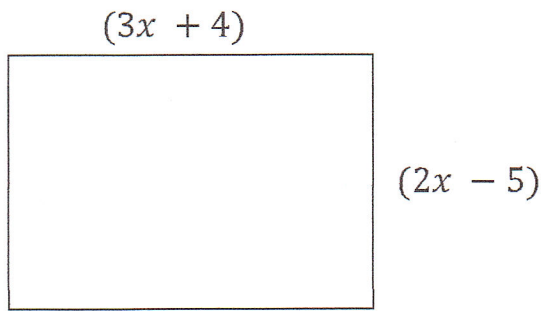
f. Subtract answer d from answer b. Then divide by answer c.

-3.4375

g. Your two solutions are:

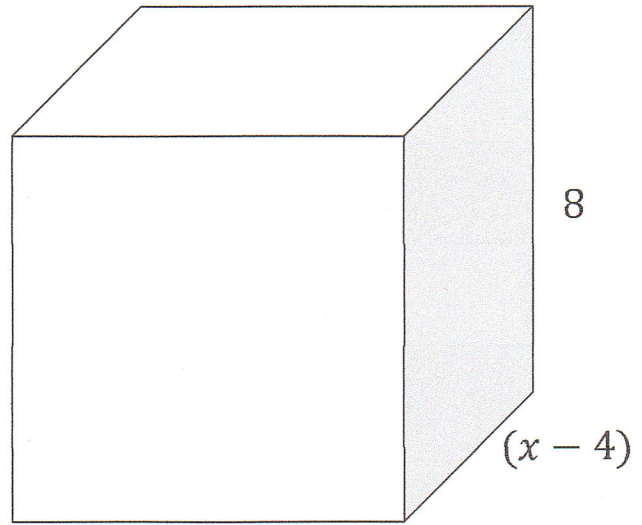
$$x = \{-3.44, .44\}$$

3. The following rectangle has sides as shown. What is the area?



$$A = 6x^2 - 7x - 20$$

4. The following rectangular prism has the dimensions shown



What is the volume?

$$V = 24x^2 - 48x - 192$$

Refer to Vocabulary
Quiz for Part 7
on final - vocab