Name: _____

Algebra Ch. 6 Division

Algebra 6-1: Dividing

Warm-Up

1. Reduce 8x/24x.
2. Reduce 30x/2
3. Reduce -12pi/-18pi

Parts of Division

a. _____: the number being divided

b. _____: the number that the _____ is being divided by

c. _____: the answer

Example: 42 ÷ 7 = 6

Key Notes

- When dividing fractions _____ by the _____. This means to _____ _____.
- A fraction bar is the same thing as _____.
- A _____ fraction is when we have _____.
- When dividing if the signs are the same (example: positive divided by a positive), then the answer is _____.
- When dividing if the signs are the opposite like _____ and _____, then the answer is _____..
- Can we have the fraction 4/0? Why or why not? _____
- What are 3 other ways to write -1/3 ? _____ _____ _____ _____

Examples

1. Simplify 2n/5 / 10n/7
2. Simplify. (4xy/11) / 22x

3. Simplify. 2 1/3 ÷1 1/3

4. Simplify. 8π/3 / -π/24

5. Solve and check. 2.3w = 18.4

6. -31x = 527

7. What number can x not be? (hint: What number cannot be in the bottom of a fraction?)

2x/(3-x)

Assignment: 6-1 #'s 3-26, skip 14

Algebra 6-2 Rates/6-3 Ratios

Warm-Up

Simplify numbers 1-4.

1. $\frac{y}{2x} \div \frac{x}{3}$

2. $\frac{10x}{\frac{5}{3x}}$

3. $\frac{\frac{xy}{z}}{\frac{x^2}{yz}}$

4. $\frac{-3}{z} \div 9$

Rate	Ratios

- **Remember to _____ your answers with proper _____.**
- **We can write ratios and rates using the word _____, using a _____ bar, or using a _____.**

Rate Examples

1. You drive 100 miles in 2 hours. How many miles per hour is this? _____

2. There are 500 calories in 4 servings of pretzels. How many calories are there per serving? _____

3. Cereal costs $3.99 for a 12-ounce box. How much does is cost per oz? _____

4. Angie worked 7.5 hours yesterday and earned $53.33. What did she earn per hour? _____

5. From 2000-2006, the enrollment at NHS has decreased by 350 students. How fast was the enrollment changing during this period? _____

6. $\frac{k-7}{k-10}$ What value can k **not** have? _____

7. Find the rate of temperature change if the temperature drops 11° in 5 hours.

Vocab	Definition
Percent of Discount	
Percent of Tax	

Ratios Examples

8. It takes Bob 15 minutes to get to work and it takes Sue 40 minutes to get to work. What is the ratio of Bob's travel time to Sue's travel time? _____

9. A park is an eighth of a mile long and 300 feet wide. Find the ratio of length to width. _____

10. NHS won 23 of its last 42 basketball games.
    a. What is the ratio of games won to games played? _____
    b. What % of the 42 games were won? _____

11. A pair of shoes that originally sold for $40 is on sale for $8 less.
    a. What is the percent of discount on the shoes? _____
    b. If there is $1.92 tax on the sale price, what is the tax rate? _____

Assignment: 6-2 #'s 1, 4-17
6-3 #'s 6-10, 12, 16

6-4 Relative Frequency vs. Probability
Warm-up

Toss a coin and record your outcomes.

Toss #	Outcome
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Toss #	Outcome
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Vocab	Definition	Example
Outcome		
Event		

Relative Frequency	Probability
1.	1.
2. 0 means _____	2. 0 means _____
3. 1 means _____	3. 1 means _____
4. Complement =	4. Complement =
5. _____	5. _____

Similarities

- _____
  - Ex: Less likely → More likely to happen
- _____
  - Ex:

Examples

1. Find the relative frequency of boys born to total births for the year when 4, 158, 000 babies were born and 2, 129, 000 were boys.

   _____

2. There are 4 green gumballs and 5 red gumballs in a jar.
   a. How many total outcomes are there? _____
   b. What is the probability of grabbing a red gumball? _____

Coin Toss

What is the **probability** of tossing a coin and it landing on heads? Put in decimal form.

_____ Tails? _____

Using the chart you created in the warm-up, what is your **relative frequency** of flipping a coin and it landing on tails?

Tails: Total Outcomes

_____: _____ = _____ = _____ %

(ratio) (fraction) (percent)

Assignment: 6-4 #'s 2-6, 8, 15, 18-22

Algebra 6-6 Probability without Counting

Warm-Up

1. Suppose you have a 12-sided die with the sides numbered from 1 to 12. Assuming the die is fair, calculate the following:

   a. P (tossing an even number) _____

   b. P (tossing a 7) _____

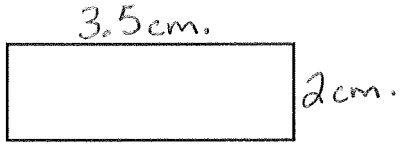
   c. P (tossing a number less than 7) _____

2. **Multiple Choice.** A student flips a coin a 100 times and counted heads 47 times. Which phrase best describes the ratio 47/100?
   a. the probability of a coin toss landing on heads
   b. the relative frequency of a coin toss landing on heads

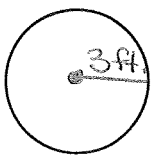
Geometric Probability = _____

Formula Refresher

- **Area of a Rectangle = _____**

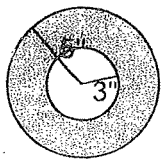


- **Area of a Circle = _____**



Examples

For numbers 1-3, find the probability of a dart landing in the shaded area.

1. 

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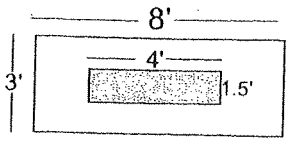
2. 

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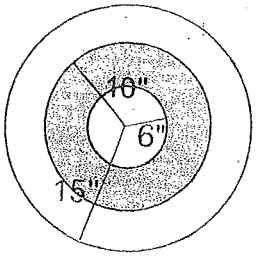
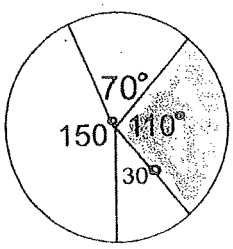
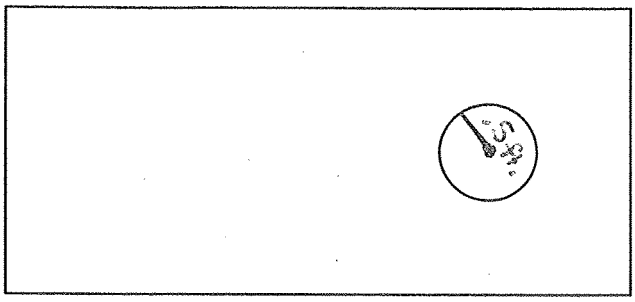
3. 

_____

4. Find the probability of the spinner landing in the shaded region. _____



5. Find the probability of a beanbag landing in the hole. _____

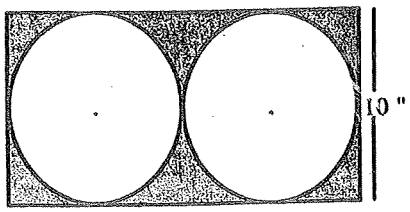


Assignment: 6-6 #'s 1, 10-14, 16

6-5 Solving Percent Problems with Equations

Warm-Up

1. Find the probability of landing in the shaded region of the target below. _____



IS =

OF =

WHAT =

* Remember to change % to _____ and decimals to _____.

Examples

1. What is 50% of 300?

2. What is 5% of 300?

3. What is .5% of 300?

4. What is 2% of 93?

5. 112% of 650 is what number?

6. 7% of what number is 31.5?

7. A Jacket costs $70 on sale. This is after a 20% sale. What is the original price? _____

8. Your car after tax is $10,500. Tax is 5%. What was the price before tax was added? How much money did you pay in tax?

_____

9. There's a sale at your favorite store. Everything is 25% off. You pay $40 for a pair of jeans (without tax). What *would you have paid* if the jeans were not on sale?

_____

10. A digital camera costs $126 with 5% tax. How much is the camera before tax is added?

_____

Assignment: 6-5 #'s 1-4, 9-13, 16-20, skip 18

Algebra 6-7: Size Changes
Warm-Up

1. 60% of what number is 130? _____

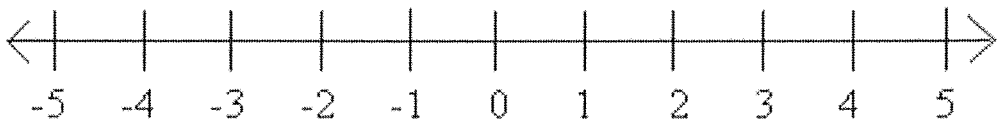
2. What percent of 50 is 29? _____

3. After a 30% sale, a pair of shoes cost $38. Find the original price of the shoes? _____

4. After 5% tax, your new phone cost $135. Find the price of the phone before tax is added. _____

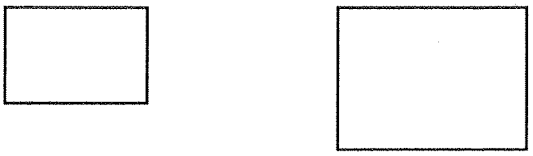
- **Magnitude** is the same as _____
- The **k-value** determines _____
- A **negative** size change factor _____
- A **positive** size change factor _____

Result	Definition	k value
Contraction		
Expansion		
Neither		



Examples

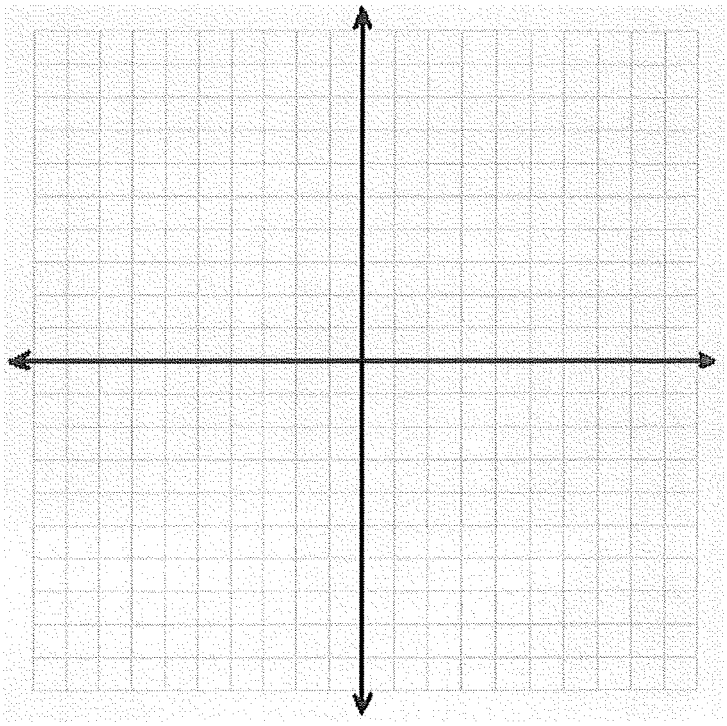
1. I have a photo that is 4" by 6". I want to increase the size by 140%. What are the new dimensions of my photo?



2. a. Graph triangle LMN which has the coordinates L(6, 3), M(-3, 0), and N(0, 3).

   b. Draw its image under a size change of magnitude 2. Is this image an expansion, contraction, or neither?

   c. Draw its image under a size change of magnitude -1/3. Is this image an expansion, contraction, or neither?



3. Find the image of (4, -3) under a size change of magnitude -8. _____

4. Under a size change of magnitude 10, the image of point P is (15, -45). What are the coordinates of P?

5. You had a 4" by 3" wallet size photo enlarged to 14" by 10.5". By what percent was this photo enlarged by?

Assignment: 6-7 #'s 2-9, 13-18a, 20, 28, 2 graphs

6-5 to 6-7 Algebra Quiz Review

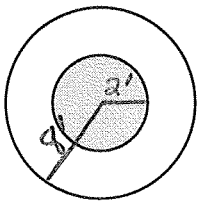
1. A bag of chips has 240 calories. 32.5% of the calories come from fat. How many calories do not come from fat?

2. 16 is 30% of what number?

3. 5% of students in the class got "A's." 4 students got "A's." How many students were in the class?

4. What does a negative magnitude do to the image?

6. What is the probability of a dart randomly landing in the shaded area?



Algebra 6-8: Proportions

Warm-Up

For each of the following size changes, fill in the chart. Find the size change factor (k) for the last two entries.

Size Change	Expansion, Contraction or Neither?	Rotated 180 degrees?
k = 1		
k = -1		
k = .25		
k = -1.7		
(7, -2) → (3.5, -1) k = _____		
(-4, 6) → (6, -9) k = _____		

Vocab	Definition	Example
Proportion		
Means-Extremes Property		

Examples of Proportions	Non-Examples of Proportions

- Be consistent with _____!!! Use _____ to help keep track!

Examples

1. You can drive 100 miles on 5 gallons of gas. With the same gas mileage, how far can you travel on 8 gallons of gas?

2. You buy 3 apples for $0.60. How much does a dozen apples cost?

3. You are making punch that calls for 3 cups of soda and 2 cups of juice. You want to make a large amount of punch for a party. You have six, 20oz. (total 120 oz. or 15 cups) bottles of soda to use. How much juice do you need?

Solve numbers 4-7.

4. $\frac{x}{6} = \frac{4}{3}$

5. $\frac{2}{x} = \frac{4}{x-1}$

6. $\frac{2}{2-x} = \frac{8}{x-8}$

7. $\frac{x}{9} = \frac{3}{x}$

Assignment: 6-8 #'s 1-7, 10-26, skip 3 & 19

Algebra 6-9: Similar Figures
Warm-Up

Solve.

1. $\frac{5m}{14} = \frac{6}{21}$

2. $\frac{1}{y+7} = \frac{8}{72}$

3. $\frac{c+12}{c+2} = 6$

4. $\frac{2e+9}{24} = \frac{e+1}{8}$

5. $\frac{-4}{5} = \frac{12}{a}$

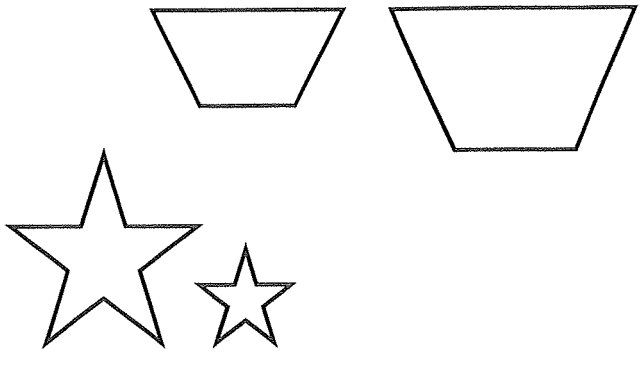
6. $\frac{3}{x} = \frac{x}{12}$

Vocab	Definition	Example
Corresponding Angles		
Corresponding Sides		

2 Requirements to be Similar Figures

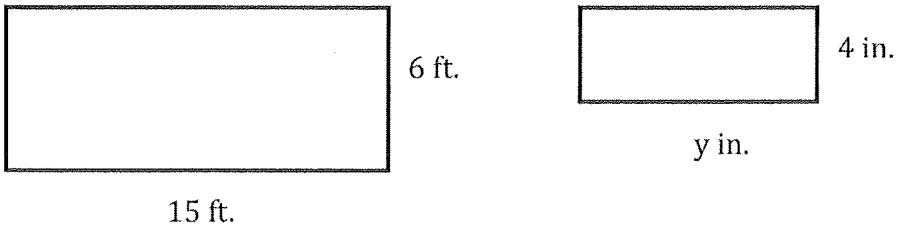
1. _____

2. _____

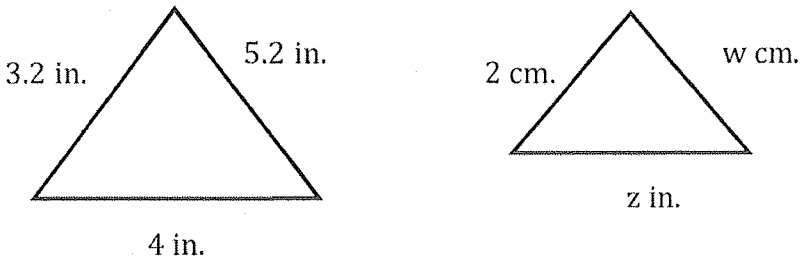


Examples

1. The 2 rectangles below are similar. Find the missing sidelength.

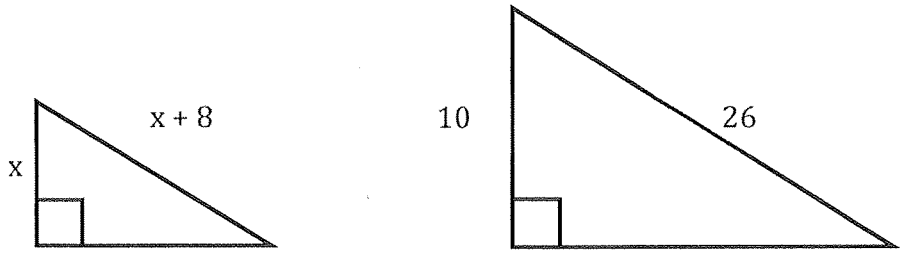


2. The triangles below are similar. Find the missing side lengths.



3. A 15-foot flagpole casts a 9-foot shadow. How tall is a tree that casts a 22-foot shadow at the same time of day?

4. The triangles below are similar. Find x.



Assignment: 6-9 #'s 1-4, 6-11, 14-17