Name _____ Class _____ Date _____

Enrichment 5-1

Ratios

Critical Thinking

The ratios below describe a set of polygons. Use the ratios to find the number of polygons in the set. All ratios are written in lowest terms.

- Right triangles to obtuse triangles is 2 to 3.
  Obtuse triangles to acute triangles is 6 : 5.
- Triangles to rectangles is $\frac{5}{4}$.
- Rhombuses to trapezoids is 3 : 5.
- Quadrilaterals to triangles is $\frac{4}{3}$.

1. List the order in which you will find the number of polygons in the set. Explain.

a. First _____ **b.** Second _____

c. Third _____ **d.** Fourth _____

e. Fifth _____ **f.** Sixth _____

_____

_____

_____

2. What is the fewest number of polygons that can be in the set?

a. Right triangles _____ **b.** Obtuse triangles _____

c. Acute triangles _____ **d.** Triangles _____

e. Rectangles _____ **f.** Rhombuses _____

g. Trapezoids _____ **h.** Quadrilaterals _____

3. Show the number of polygons in another set that has the same ratios.

a. Right triangles _____ **b.** Obtuse triangles _____

c. Acute triangles _____ **d.** Triangles _____

e. Rectangles _____ **f.** Rhombuses _____

g. Trapezoids _____ **h.** Quadrilaterals _____

Name _____ Class _____ Date _____

Enrichment 5-2

Unit Rates

Decision Making

Melissa is planning on attending college next year. She has decided to go to the University of Maryland, the University of Colorado, or UCLA. She made the table below to help her decide which college will cost the least based on her options.

	University of Maryland	University of Colorado	UCLA
Per Credit	$556	$503	$179
Meal Plan	$2,925	—	—
Housing	$4,176	$3,336	$8,604

1. The University of Maryland is in session for 34 weeks.

a. If Melissa eats 3 meals a day while school is in session, what is the per meal cost? How much does she pay each day for meals?

_____

b. How much per day does student housing cost?

_____

2. At the University of Colorado and UCLA, the cost of the meal plan is included in the cost of housing.

a. School is in session for 31 weeks at the University of Colorado. What is the cost per day of housing and meals? _____

b. School is in session for 33 weeks at UCLA. What is the cost per day of housing and meals? _____

c. Compare the cost per day of housing and meals at the University of Colorado and UCLA. Which is the least expensive? Are there other issues besides cost that Melissa should consider? Explain your thinking.

_____

_____

_____

3. Melissa wants to compare the cost of meals and housing at the University of Maryland to the University of Colorado. How can she use unit rates to do this? Which is least expensive?

_____

_____

_____

Name _____ Class _____ Date _____

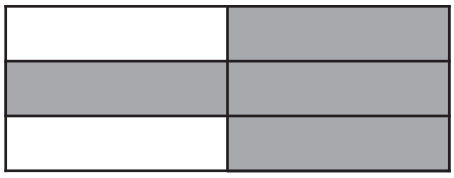
Enrichment 5-3

Equivalent Ratios and Rates

Visual Thinking

For each ratio shown, draw two equivalent ratios of the shaded region to the non-shaded region. Explain your drawings.

1.



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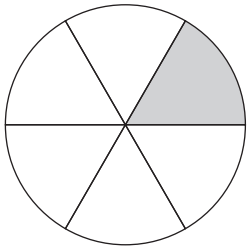
2.



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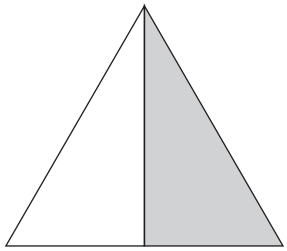
3.



_____

4. Explain the method you used to draw the equivalent ratios for each problem.

_____

_____

_____

Name _____ Class _____ Date _____

Enrichment 5-4

Using Ratios to Convert Measurement Units

Critical Thinking

Use what you know about ratios and converting measurement units to answer the following questions.

A machine in a factory makes one metal strip that is 2 feet in length, every 5 minutes.

1. How many metal strips can the machine make in 1 hour?

_____

2. What is the total length, in centimeters, of the metal strips made in 1 hour? Show your work.

(**Hint:** 1 foot = 30.48 centimeters.)

_____

_____

_____

3. A new machine is installed in the factory. The new machine can make one metal strip that is 2 feet in length, every 4 minutes. How many more metal strips can the new machine make than the old machine in 30 minutes? Show your work.

_____

4. How much longer is the total length, in centimeters, of the metal strips made in 1 hour by the new machine than the old machine? Show your work.

_____

_____

_____

_____

_____

Name _____ Class _____ Date _____

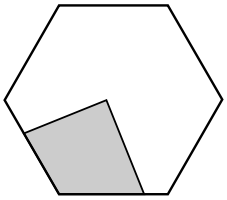
Enrichment 5-5

Understanding Percents

Visual Thinking

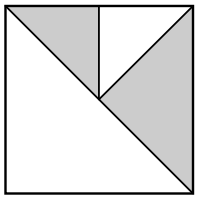
Estimate the percentage of the figure that is shaded. Then circle the approximate percent on the right. Explain your answers.

1.



25% **a.** 33% **b.** 75% **c.** 90% **d.**

2.

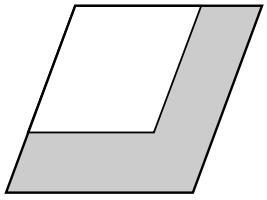


60% **a.** 25% **b.** 50% **c.** 37.5% **d.**

3.

43% **a.** 50% **b.** $33\frac{1}{3}\%$ **c.** 25% **d.**

4.

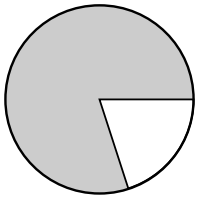


25% **a.** 40% **b.** 55% **c.** 70% **d.**

5.

40% **a.** $33\frac{1}{3}\%$ **b.** 25% **c.** 14% **d.**

6.



90% **a.** 80% **b.** 70% **c.** 60% **d.**

Name _____ Class _____ Date _____

Enrichment 5-6

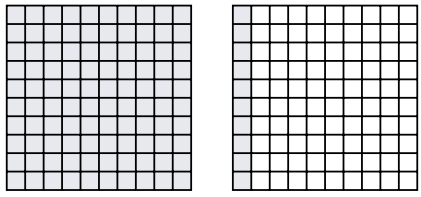
Percents, Fractions, and Decimals

Critical Thinking

You can write percents greater than 100%.

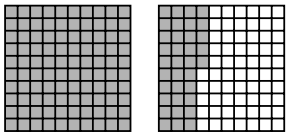
The sixth-grade class set a goal for each student to read 100 books during the school year. If they succeed, their teacher and principal will throw the class a party.

Lamar has read 110 books so far this year.



$\frac{110}{100} = 110\%$

Write the percent that is shaded.

1. 

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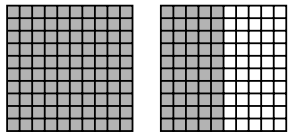
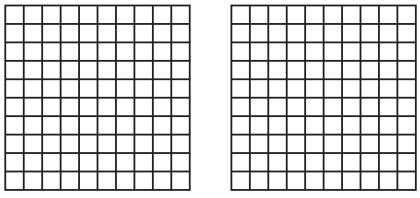
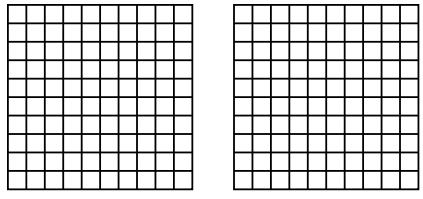
2. 

_____

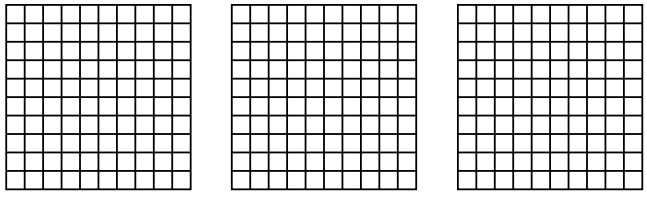
Shade the percent given.

3. 102% 

4. 168% 

5. Together, Ryan and Sabelle planned to make 100 party favors in one day. At the end of the day, Ryan had 117 party favors and Sabelle had 106 party favors. Shade the decimal grids to find the sum of 117% and 106%.

_____



Name _____ Class _____ Date _____

Enrichment 5-7

Finding the Percent of a Number

Critical Thinking

Use what you know about finding percents and writing equations to find multiple percents of a number.

1. What is 25% of 40% of 45?

   a. What is 40% of 45? _____

   b. What is 25% of your answer to part (a)? _____

2. **a.** What is 25% of 45? _____

   b. What is 40% of your answer to part (a)? _____

3. **a.** What is 25% of 40%? _____

   b. What is 45 multiplied by your answer to part (a)? _____

4. Compare how you found the answers to Exercises 1, 2, and 3. What are the similarities? What are the differences?

   _____

   _____

5. How can you use this observation to mentally solve percent problems such as 50% of 140% of 200?

   _____

   _____

6. If 50% of 120% of 30% of a number is 108, what is the number? Show how you found your answer.

   _____

7. If 40% of 60% of 25% of a number is 54, what is the number? Show how you found your answer.

   _____

8. A ski shop sells a pair of skis for $210. For a winter sale, the skis are 30% off. Two weeks later, the shop has a clearance sale and sells the skis for 20% off the sale price. What is the clearance price of the skis?

   _____

Name _____ Class _____ Date _____

Enrichment 5-8

Finding the Whole

You are going shopping. Many of your stores have items on sale. The chart below shows the sale price and percent discount for each item. What is the original price of each item? Complete the chart below.

(**Hint:** The percent discount represents the percent discount off the original price, NOT the percentage of the original price that the sale price represents.)

	Sale Price	Percent Discount	Original Price
Shirt	$11.25	25%	
Shoes	$21	40%	
Pants	$15.60	35%	
Hat	$4	50%	
Belt	$3.50	30%	

How did you find the original price for each item using equations?