

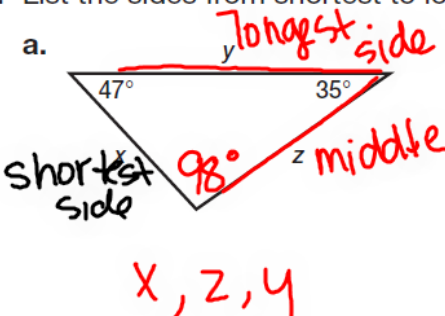
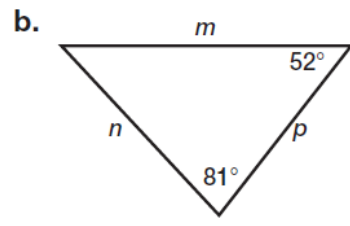
Questions on Lesson 3.1?

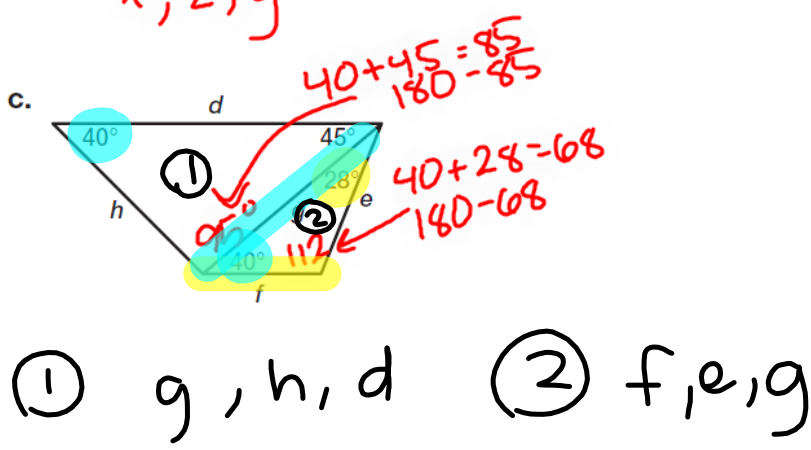
We will be taking our content
mastery quiz soon!

****** Arrange the desks into rows.

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7. List the sides from shortest to longest for each diagram.


a. 
 b. 

c. 

① g, h, d ② f, e, g

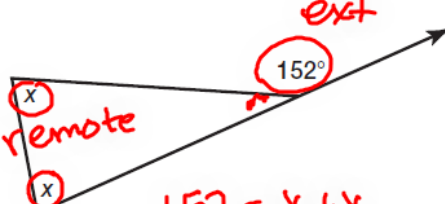
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14. Solve for x in each diagram.


a. *remote interior*



$$\begin{array}{r} 108 + x = 156 \\ -108 \quad -108 \\ \hline x = 48^\circ \end{array}$$

exterior

b. *ext*


$$\begin{array}{r} 152 = x + x \\ 152 = 2x \\ \frac{152}{2} = \frac{2x}{2} \\ 76 = x \end{array}$$

c. 

d. 

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c.

$2x$
 48°

$3x$
 72°

60

120°

$2x + 3x = 120$
 $5x = 120$
 $\frac{5x}{5} = \frac{120}{5}$
 $x = 24$

d.

x

$(2x + 6^\circ)$

126°

$(2x + 6^\circ) + x = 126$
 $2x + 6 + x = 126$
 $3x + 6 = 126$

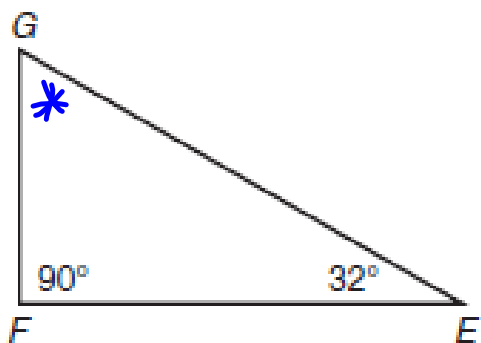
The **Exterior Angle Inequality Theorem** states: "the measure of an exterior angle of a triangle is greater than the measure of either of the remote interior angles of the triangle."

15. Why is it necessary to prove two different statements to completely prove this theorem?

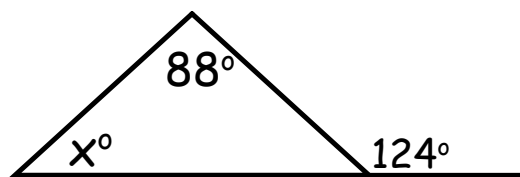
10/1 Content Mastery Quiz 3.1

****Show ALL work to receive credit****

1) What is the angle measure of angle FGE?



2) What does x equal?



3.2

Trade Routes and Pasta Anyone?

The Triangle Inequality Theorem

PG. 233 IN YOUR BOOK

The Triangle Inequality Theorem states: "the sum of the lengths of any two sides of a triangle is greater than the length of the third side."

****SKIP the rest of lesson 3.2!!!**

1, 2, 3 *not
make
a \triangle*

$$\del{1+2 > 3}$$

$$2+3 > 1$$

$$1+3 > 2$$

4, 5, 6 *yes,
make
a \triangle*

$$4+5 > 6$$

$$5+6 > 4$$

$$4+6 > 5$$

Stamps Around the World

Properties of a $45^\circ-45^\circ-90^\circ$ Triangle

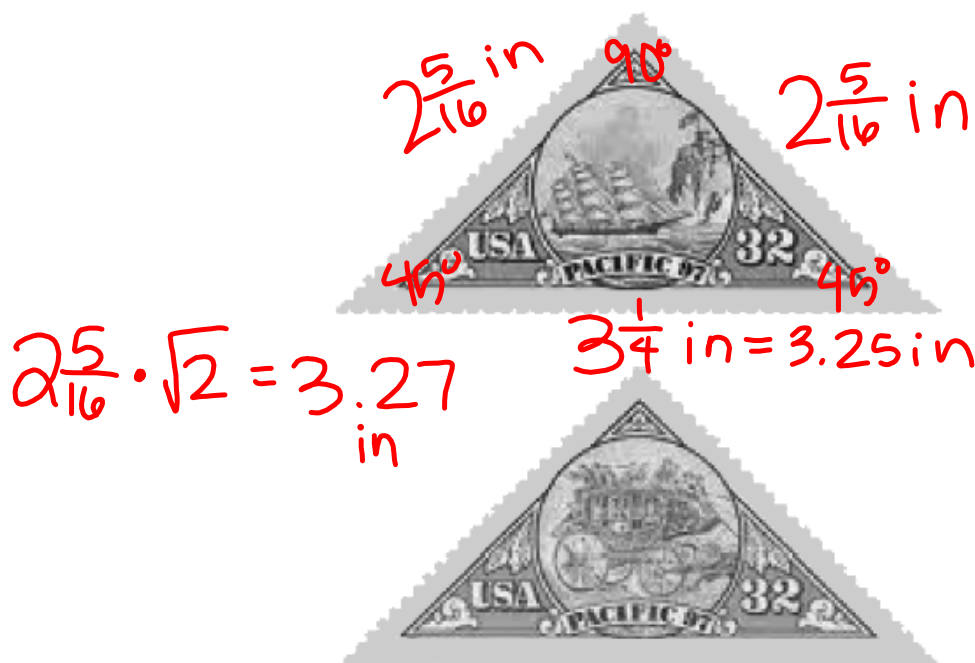
3.3

PG.235-6 IN YOUR BOOK

PROBLEM 1 Stamp Collecting Isn't Always Square!



The first triangle-shaped U.S. stamps were issued on June 8, 1997. The pair of 32-cent commemorative stamps of triangular shape featured a mid-19th-century clipper ship and a U.S. mail stagecoach.

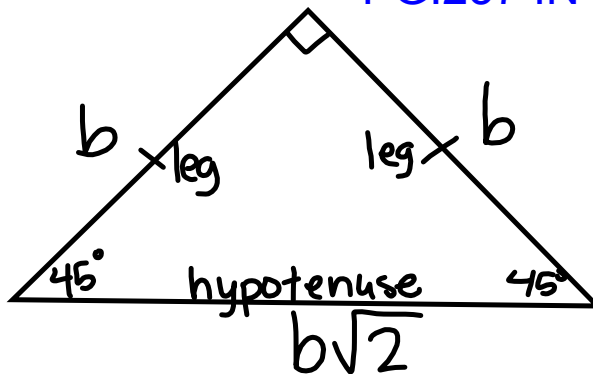


Each image shown is an enlargement of both stamps.



1. Can you use this enlargement to determine the measures of the angles of the actual stamp? Why or why not?
2. Measure the angles of one of the commemorative stamps.
3. Measure the length of the sides of one of the commemorative stamps and describe the relationship between the length of each side and the measure of the angle located opposite each side.

PG.237 IN YOUR BOOK



The 45°-45°-90° Triangle Theorem states: "the length of the hypotenuse in a 45°-45°-90° triangle is $\sqrt{2}$ times the length of a leg."



4. Use the Pythagorean Theorem to prove the 45°-45°-90° Triangle Theorem. Let c represent the length of the hypotenuse and let l represent the length of each leg.

$$l^2 + l^2 = c^2$$

$$\sqrt{2l^2} = \sqrt{c^2}$$

$$\sqrt{2} \cdot \sqrt{l^2} = c$$

$$\sqrt{2} \cdot l = c$$

$$l\sqrt{2} = c$$

5. Using the 45°-45°-90° Triangle Theorem, what is the length of the longest side of the enlargement of the commemorative stamp?

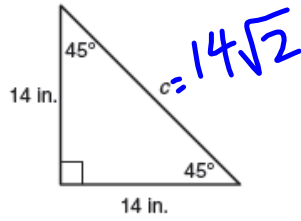
$$2\frac{5}{10} \cdot \sqrt{2} = 3.27$$

6. What additional information is needed to determine the length of the longest side of the actual commemorative stamp?

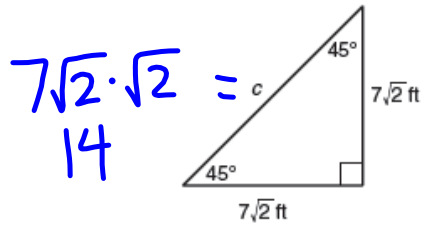
**SKIP problem 2 on pg. 241

NOT IN YOUR BOOK

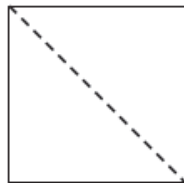
1. The legs of the isosceles triangle each measure 14 inches.
Calculate the length of the hypotenuse.



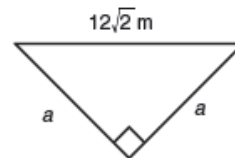
2. Calculate the value of c .



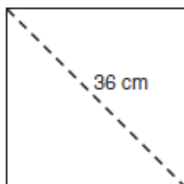
3. The perimeter of the square is 32 centimeters.
Calculate the length of its diagonal.



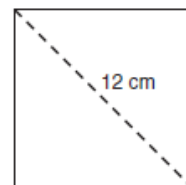
4. Calculate the value of a .



5. The length of a diagonal of the square is 36 centimeters.
Calculate the length of each side.

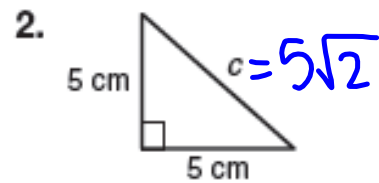
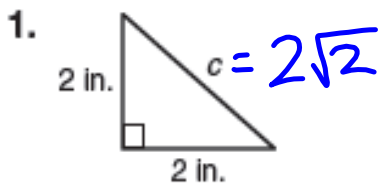


6. The length of a diagonal of the square is 12 centimeters.
Calculate the area.

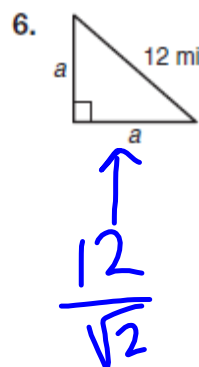
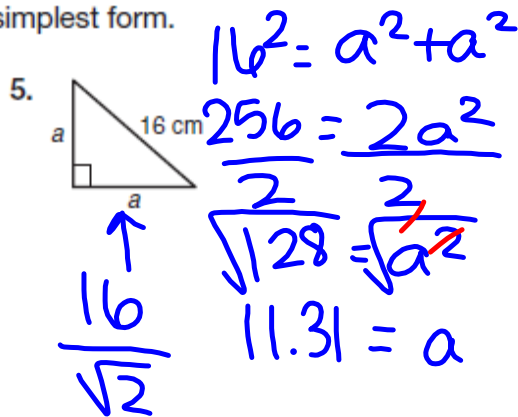


NOT IN YOUR BOOK

Determine the length of the hypotenuse of each $45^\circ-45^\circ-90^\circ$ triangle.
Write your answer as a radical in simplest form.



Determine the lengths of the legs of each $45^\circ-45^\circ-90^\circ$ triangle. Write your answer as a radical in simplest form.



Homework

Finish 3.2