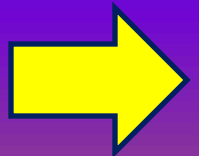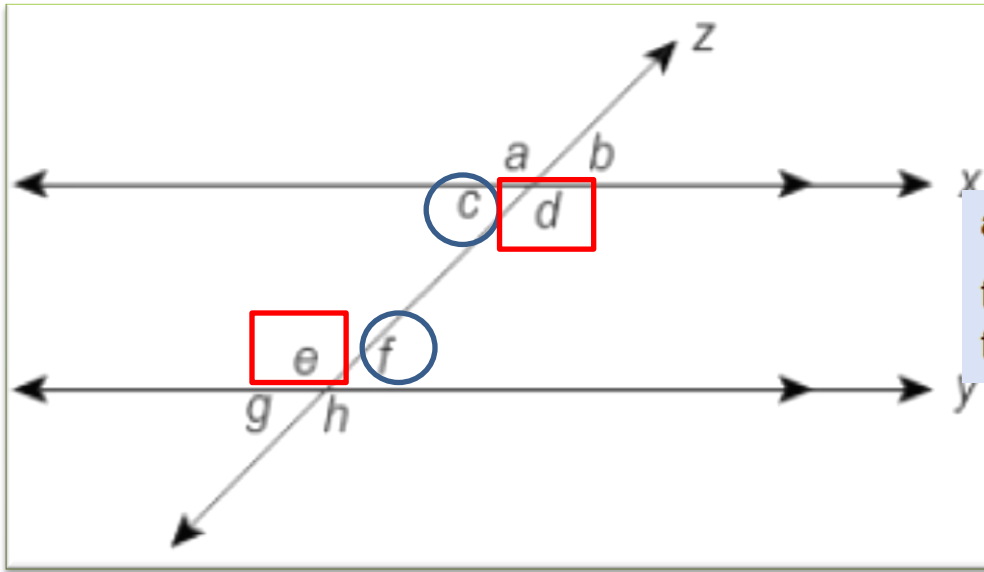# As you scroll through the slides

- Have the Unit 10 Study Guide in front of you – printed or opened on your computer.

- Use the examples to help you on your test.

- Work out the problems on paper then put in your answer
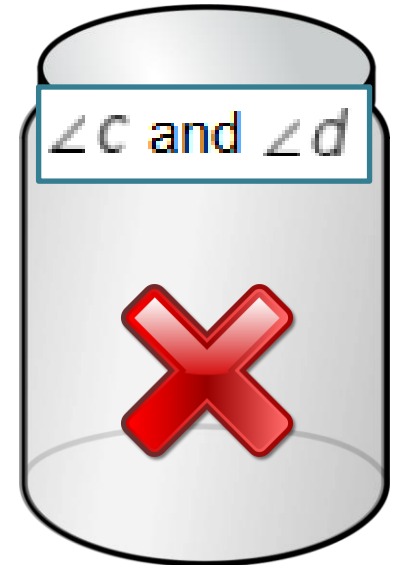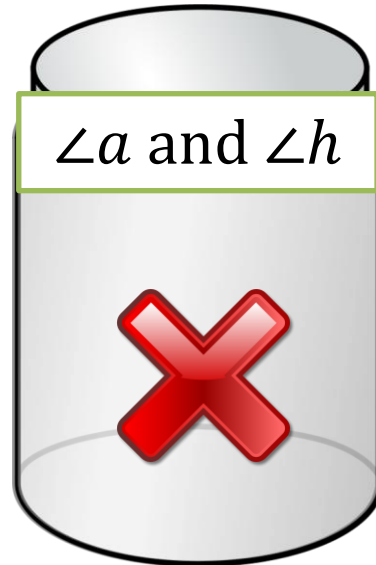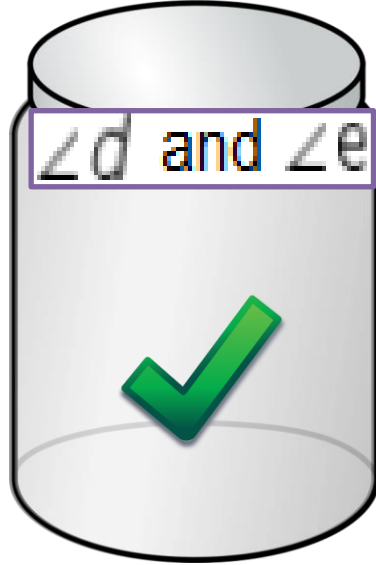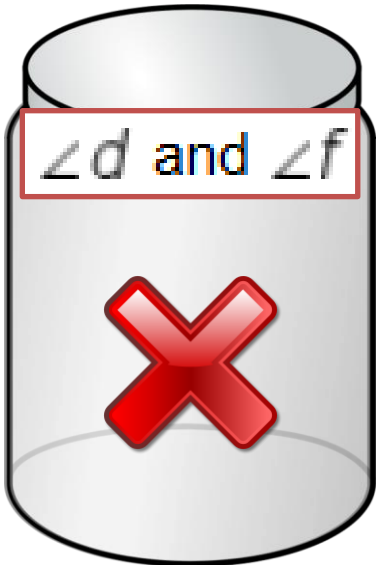
- Use a calculator

#1   Which 2 angles are alternate interior angles?

alternate interior angles

the inside angles on opposite diagonal sides of a transversal crossing two parallel lines

$\angle d$ and $\angle f$

$\angle d$ and $\angle e$

$\angle a$ and $\angle h$

$\angle c$ and $\angle d$

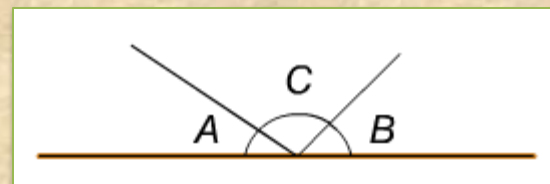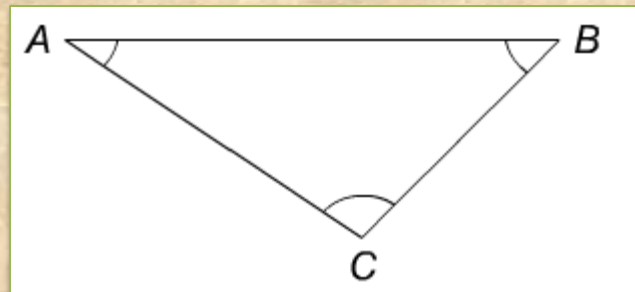A right triangle has an angle measuring 27 degrees.
What is the measure of the third angle?

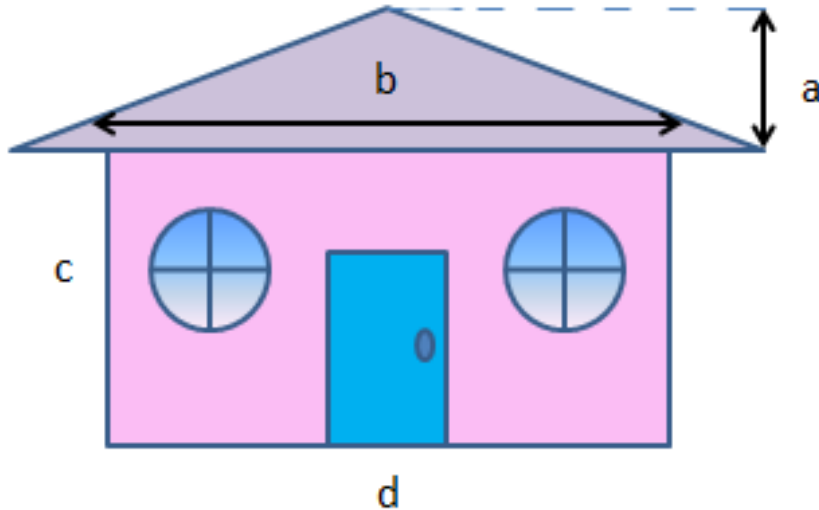$90 + 27 + x = 180$

$117 + x = 180$

$x = 180 - 117$

$x = 63°$

The triangle angle sum property says that the measures of the three angles of any triangle have a sum of 180°.

The plans for Jordan's new playhouse are below.

If a = 6cm, b = 20cm, c = 12cm, and d = 16cm, what is the area of the front of the playhouse in square cm?

b

a

c

d

1. Find the area of the triangle . $A = \frac{1}{2}bh$

$A = \frac{1}{2}(20)(6)$

$A = \frac{1}{2}(120)$

$A = 60$

2. Find the area of the rectangle. $A = bh$

$A = (16)(12)$

$A = 192$

3. Add the area of the triangle to the area of the rectangle.
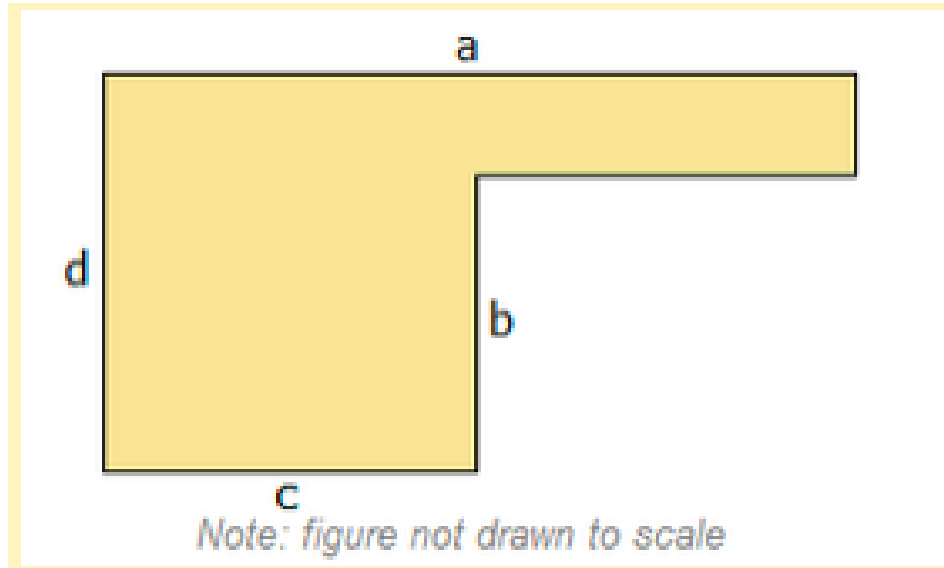
$60 + 192 = 252 \text{ cm}^2$

A. 252

B. 312

C. 216

D. 23,040

What is the area of the figure
when a = 42 ft, b = 18 ft, c = 21 ft, d = 24 ft?

Note: figure not drawn to scale

A. 504 sq ft
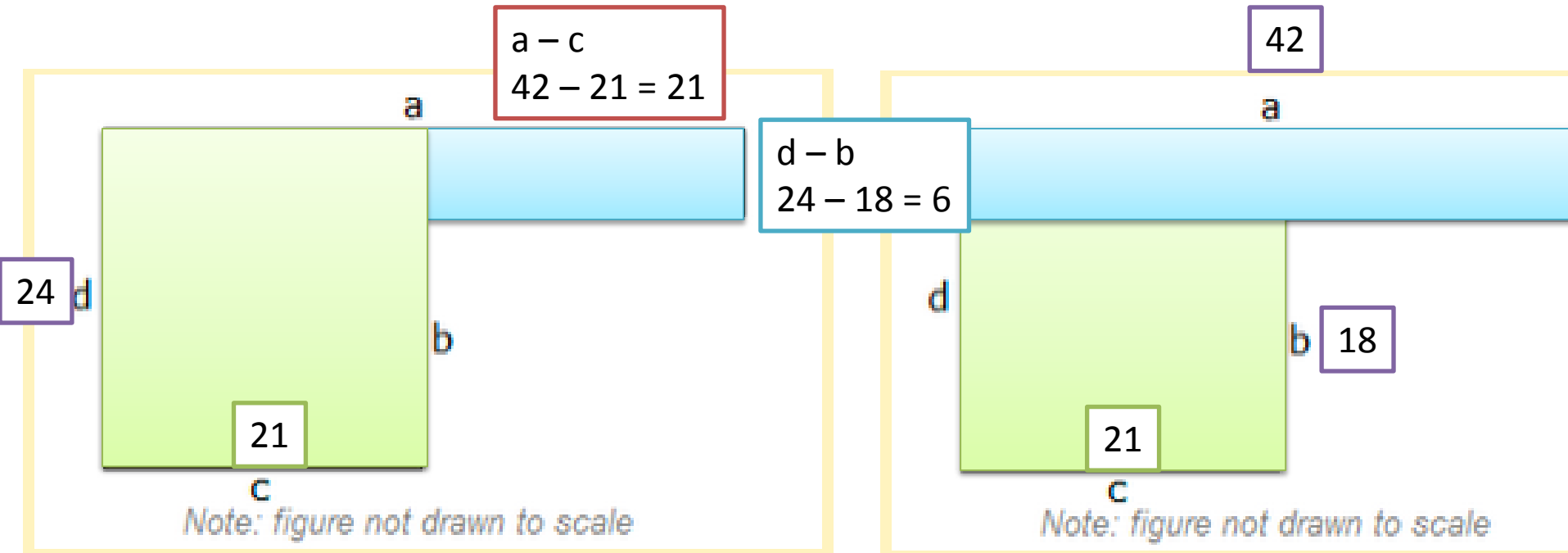
B. 105 sq ft

C. 630 sq ft

D. 2,646 sq ft

What is the area of the figure
when a = 42 ft, b = 18 ft, c = 21 ft, d = 24 ft?

C. 630 sq ft

a − c
42 − 21 = 21

a

d − b
24 − 18 = 6

42

a

24 d

b

d

b 18

21

c

21

c

Note: figure not drawn to scale

Note: figure not drawn to scale

Divide the figure into two rectangles.
Find the area of each rectangle.

21 * 24 = 504   21 * 6 = 126

Add the areas together.   504 + 126 = 630
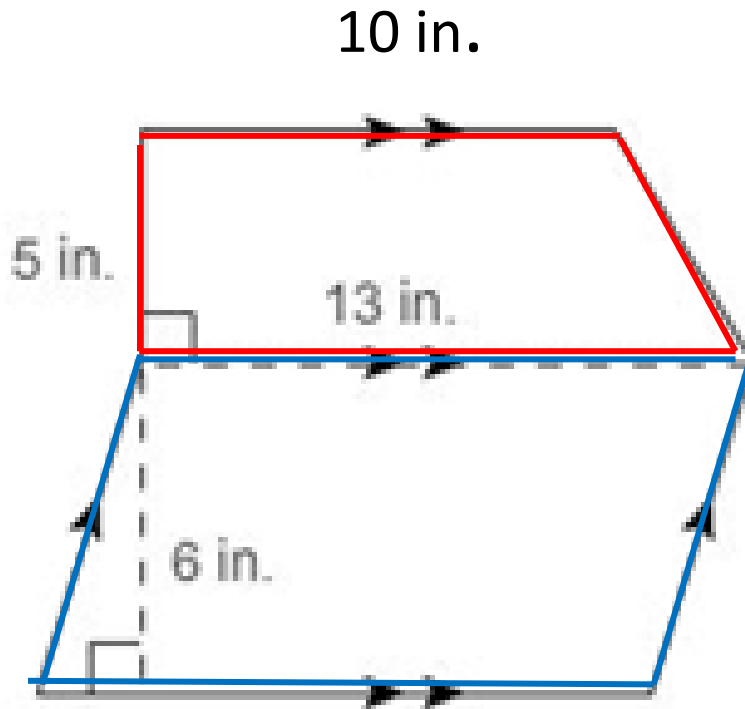
Divide the figure into two rectangles.
Find the area of each rectangle.

21 * 18 = 378   42 * 6 = 252

Add the areas together.   378 + 252 = 630

What is the area of this figure?

10 in.

5 in.

13 in.

6 in.

A. 142 in.^{2}

B. 135.5 in.^{2}

C. 130 in.^{2}

D. 73.5 in.^{2}

Area of trapezoid:
A = ½ (b$_1$ + b$_2$)h
A = ½ (10 + 13)5
A = ½ (23)5
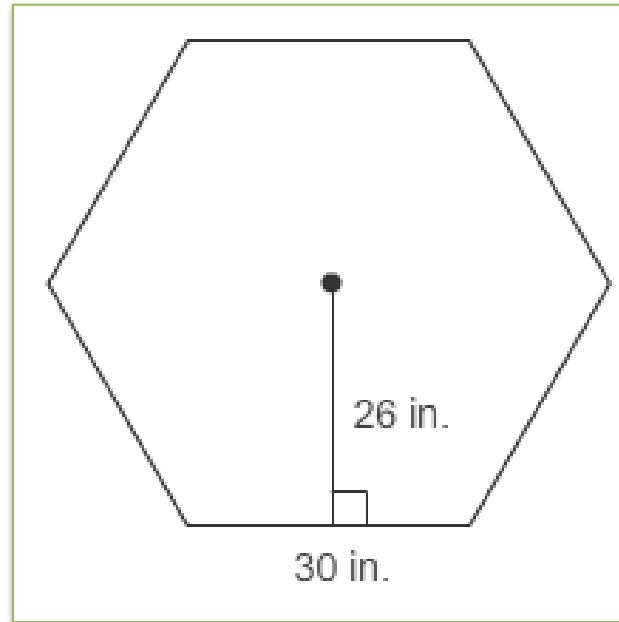A = 57.5

Total area:
57.5
+ 78.0
135.5

Area of parallelogram:
A = bh
A = 13*6
A = 78

What is the area of the regular hexagon with a side length of 30 cm and an apothem of 26 cm?

#6 & 13

26 in.

30 in.

A. 390 in²

B. 780 in²

C. 2340 in²

D. 4680 in²

Step 1: Divide the figure into congruent triangles.

Step 2: Find the area of 1 of the triangles, using the apothem as the height.

$$A = \frac{1}{2}bh$$

Step 3: Multiply the area of this 1 triangle by *n*, the number of congruent triangles, which is equal to the number of sides of the polygon.

What is the area of the regular hexagon with a side length of 30 cm and an apothem of 26 cm?

#6 & 13
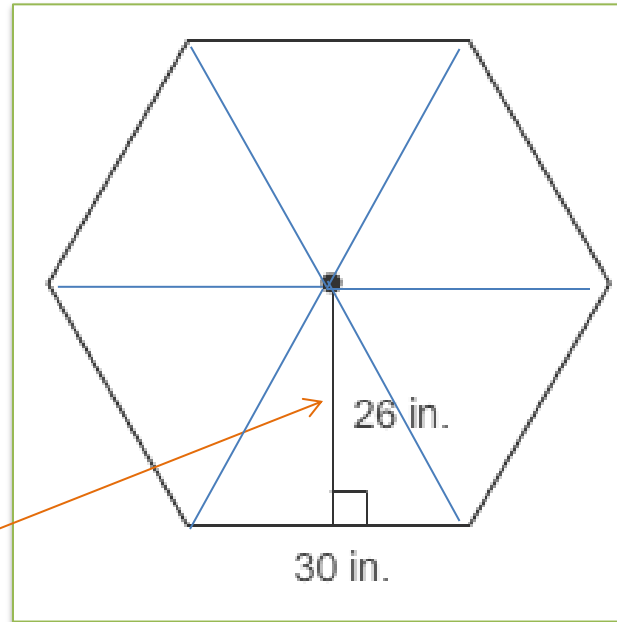
A. 390 in^2

B. 780 in^2

C. 2340 in^2

D. 4680 in^2

The apothem of a regular polygon is a line segment drawn from the center of the polygon to 1 of its sides. It is perpendicular to that side.

Step 1: Divide the figure into congruent triangles.

Step 2: Find the area of 1 of the triangles, using the apothem as the height. $A = \frac{1}{2} bh$
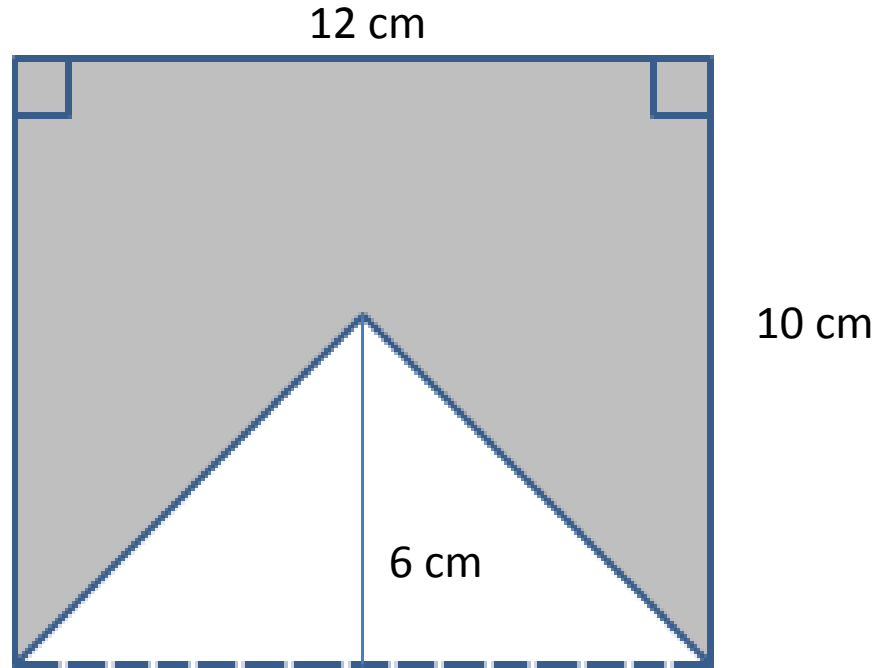
Step 3: Multiply the area of this 1 triangle by n, the number of congruent triangles, which is equal to the number of sides of the polygon.

$A = \frac{1}{2} bh = A = \frac{1}{2} (26)(30)$

$A = \frac{1}{2} (780)$

$A = 390$

$390 \times 6 = 2340 in^2$

What is the area of the shaded figure?

12 cm

10 cm

6 cm

First find the area of the entire rectangle. A = bh

A = 12 x 10
A = 120 cm²

a. 120 cm²

b. 48 cm²

Second, find the area of the triangle. A = $\frac{1}{2}$ bh

A = $\frac{1}{2}$ (12)(6)

c. 72 cm²

A = $\frac{1}{2}$ (72)

A = 36 cm²

d. 84 cm²

Third, subtract the area of the triangle from the area of the rectangle.

120cm² − 36cm² = 84cm²

#8

How many triangles can be constructed with side lengths of 6 cm, 12 cm, and 20 cm?

A. 0

B. 1

C. 2

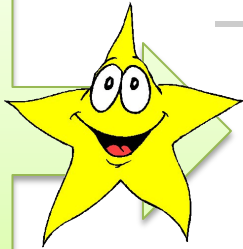D. An infinite number

$6 + 12 = 18$

$20 > 18$

Math Fact #3: The longest side of a triangle is always shorter than the other 2 side lengths put together.

- If the longest side is shorter than the sum of 2 other side lengths, then exactly 1 triangle is possible.

Which could be the measures of the three angles of an <u>acute</u> triangle?

All three angles are under 90°.

45°, 55°, 80°

This has a 90° angle making it a right triangle.

45°, 45°, 90°

This has a 110° angle making it an obtuse triangle.

20°, 50°, 110°

This has a 100° angle making it an obtuse triangle.

35°, 45°, 100°

A triangle has a base of 15 meters and a height of 5 meters.
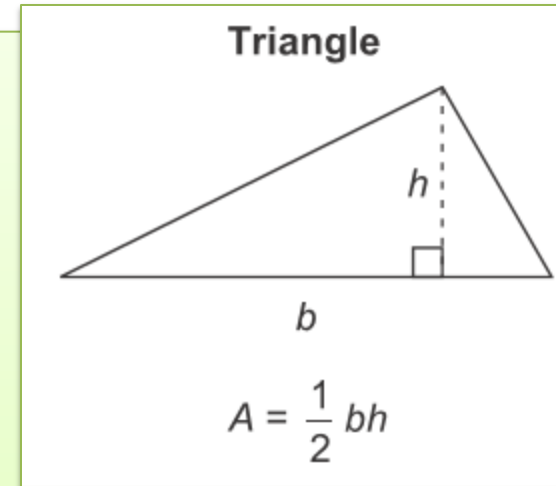
What is the area of the triangle?

A. 20 m²

B. 37.5 m²

C. 75 m²

D. 375 m²

Triangle

$A = \frac{1}{2}bh$

$A = \frac{1}{2}bh$

$A = \frac{1}{2}(15)(5)$

$A = \frac{1}{2}(75)$

$A = 37.5$

What is the area of the parallelogram?

8 mm

9 mm

Parallelogram

h

b

A = bh

A = bh
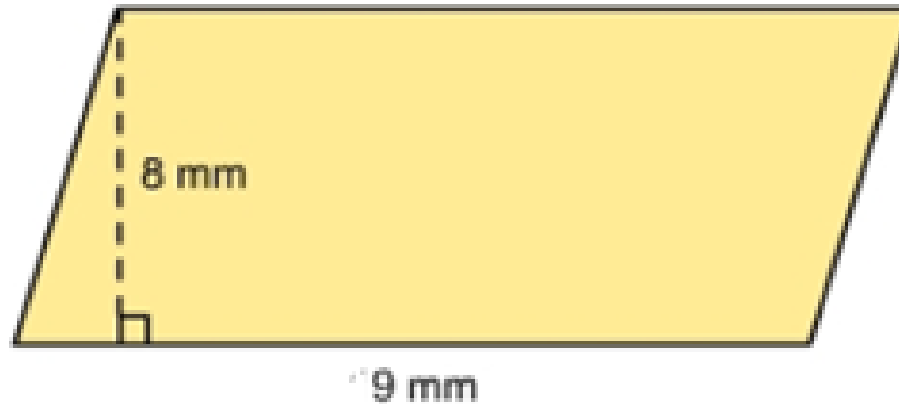
A = 9 mm x 8 mm

A = 72 mm^2
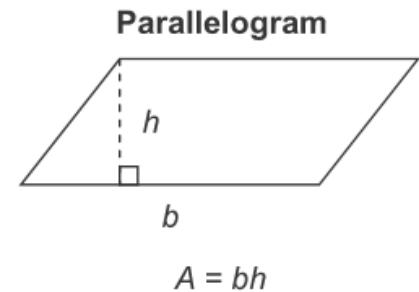
A rectangle has an area of 42 square centimeters and a length of 6 centimeters.
What is the width of the rectangle?

$A = lw$

$42 = 6w$

$$\frac{42}{6} = \frac{6w}{6}$$

$7 = w$

Rectangle

w

l

$A = lw$ $\qquad$ $P = 2l + 2w$
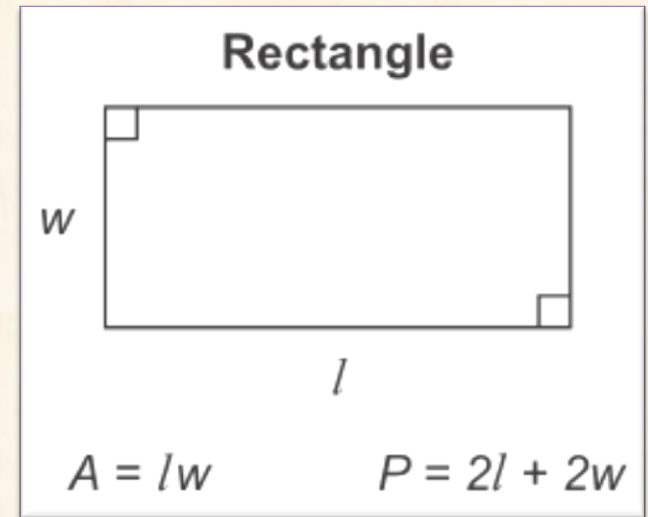
A. 7 cm

How many triangles can be constructed with angles measuring 30*, 60*, and 90*?

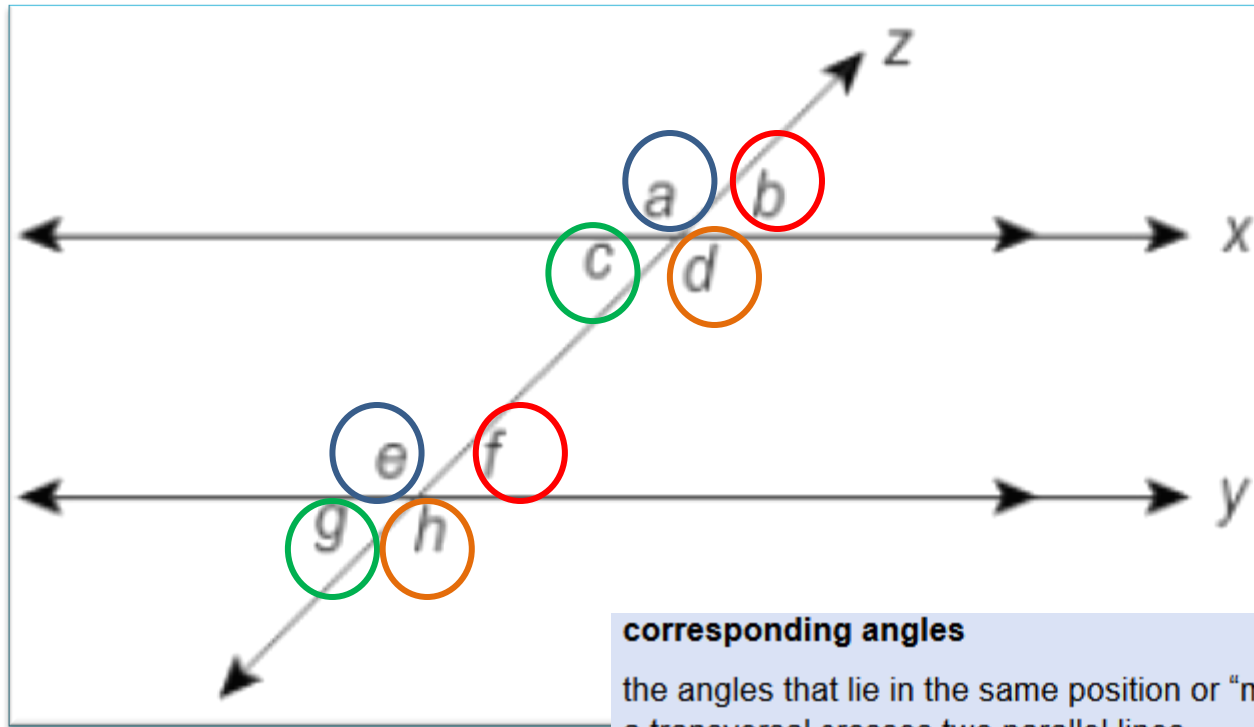A. 0

B. 1

C. 2

D. An infinite number

$$\begin{array}{r} 30 \\ 60 \\ +\ 90 \\ \hline 180 \end{array}$$

Math Fact #2: Given 3 angles whose measures sum to 180°, an infinite number of triangles are possible.

#15

Which pairs of angles are corresponding angles?

corresponding angles

the angles that lie in the same position or "match up" when a transversal crosses two parallel lines

a & e

b & f

c & g

d & h

Now What?

- Check your answers.
- Submit your test.
- K-mail Mrs. Baker and let her know you are finished.