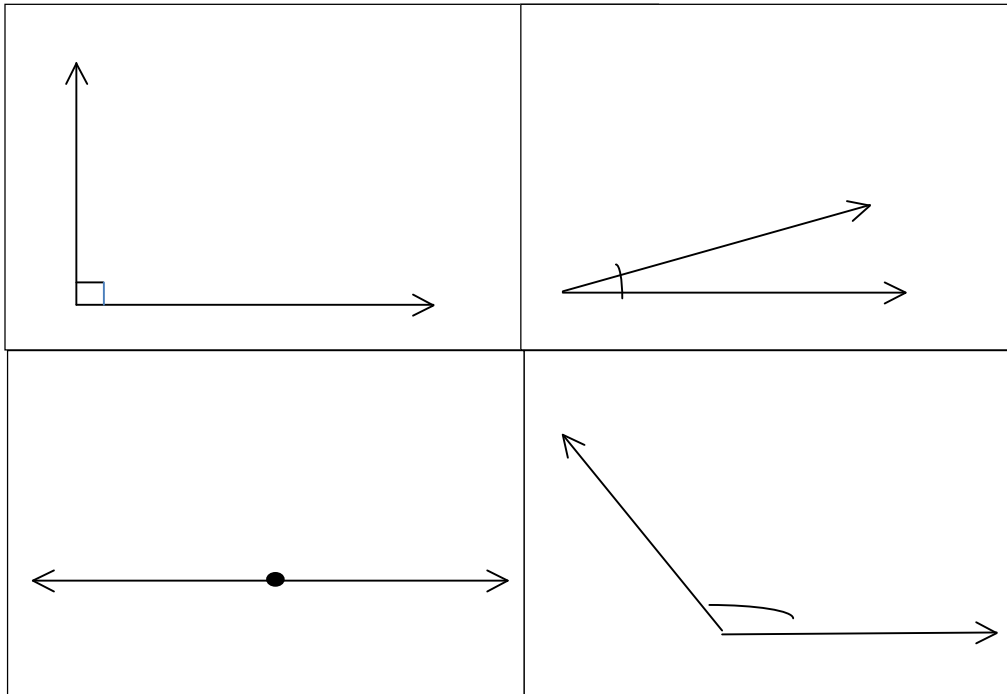


Investigation #1
Grades 6-7
Standards: 6MG 2.1

Part One: Identifying Angles



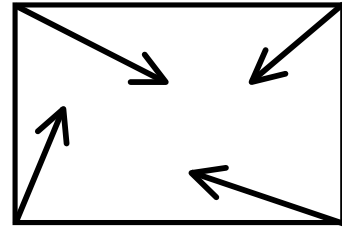
Part Two: Use the corner of a blank piece of paper. Draw a line from the corner and measure the two angles that are created.

Measurement #1: _____ + _____ = _____

Measurement #2: _____ + _____ = _____

Measurement #3: _____ + _____ = _____

Measurement #4: _____ + _____ = _____



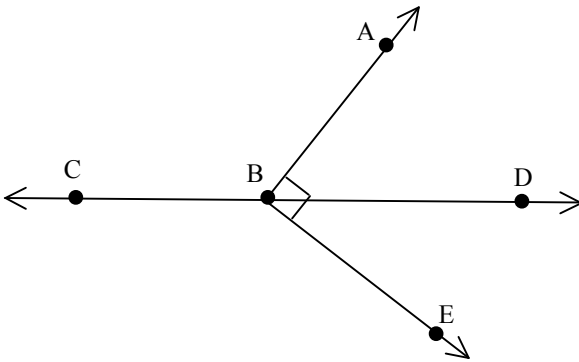
What do we notice about the sum of our angle measures?

_____.

These angles are called _____ angles and always add to _____.

You Try!

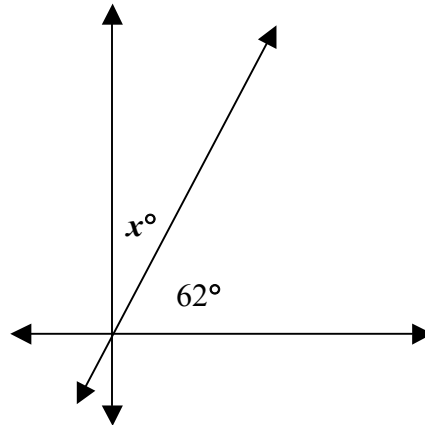
Identify below, the pair of complementary angles



Angles _____ and _____.

You Try!

Find the missing angle measure.



$x =$ _____

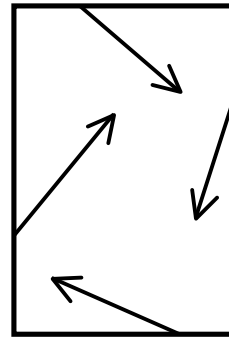
Part Three:

Measurement #1: _____ + _____ = _____

Measurement #2: _____ + _____ = _____

Measurement #3: _____ + _____ = _____

Measurement #4: _____ + _____ = _____



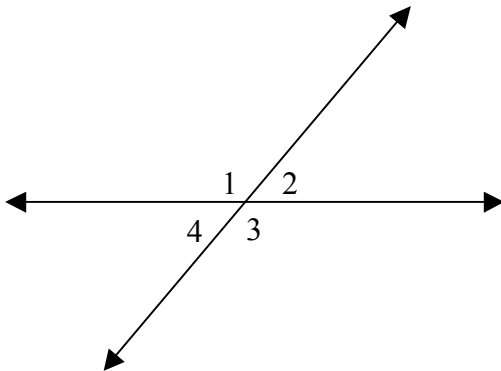
What do we notice about the sum of our angle measures?

_____.

These angles are called _____ angles and always add to _____.

You Try!

Identify below, the pair of supplementary angles.



Angles _____ and _____.

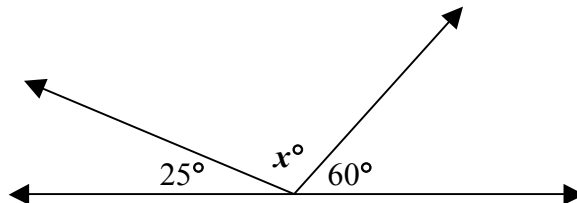
Angles _____ and _____.

Angles _____ and _____.

Angles _____ and _____.

You Try!

Find the missing measure.

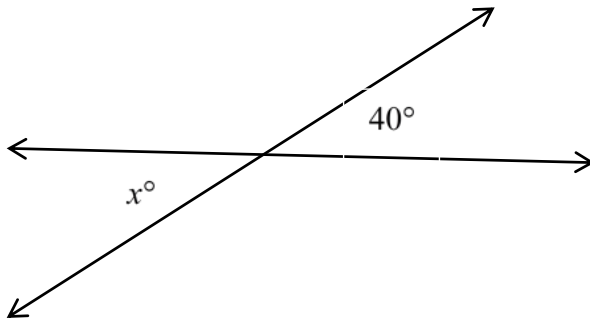


$x =$ _____

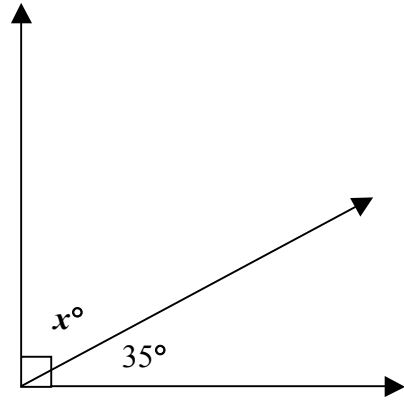
Independent Practice:

Find the missing angle measures

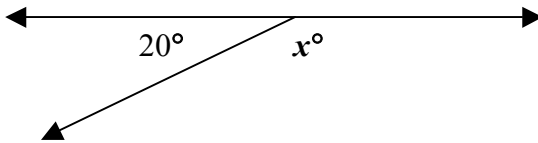
1.



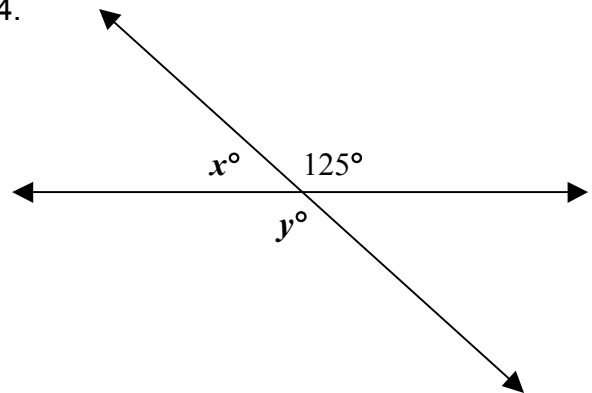
2.



3.



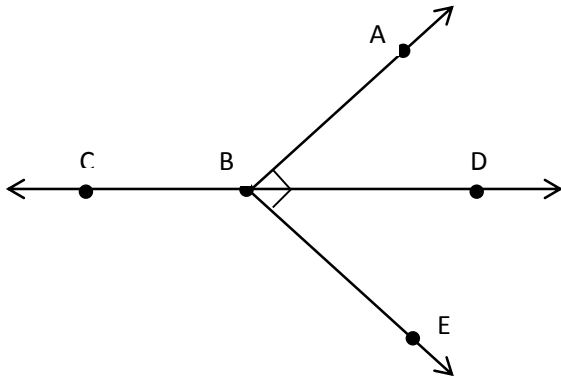
4.



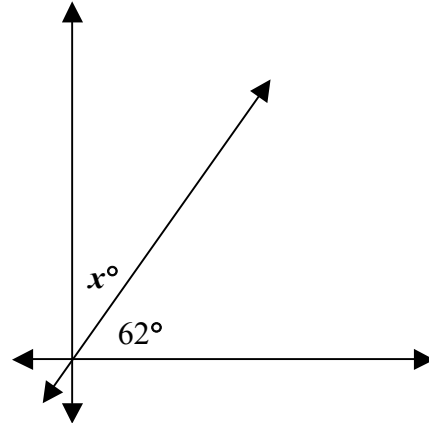
Worked Out Solutions

Part 1:

You Try!



Complementary angles creates a 90° angle, therefore the pair of complimentary angles are $\angle ABD$ and $\angle DBF$



Complementary angles add to 90° .

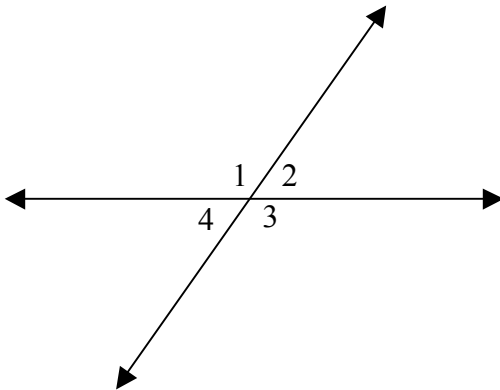
$$x^\circ + 62^\circ = 90^\circ$$

$$x^\circ + 62^\circ - 62^\circ = 90^\circ - 62^\circ$$

$$x^\circ = 28^\circ$$

Part 2:

You Try!

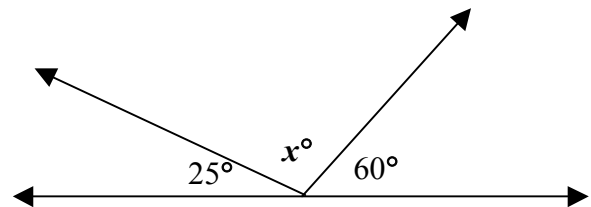


$\angle 1$ and $\angle 2$

$\angle 2$ and $\angle 3$

$\angle 3$ and $\angle 4$

$\angle 4$ and $\angle 1$



The supplementary angle must add up to 180° .

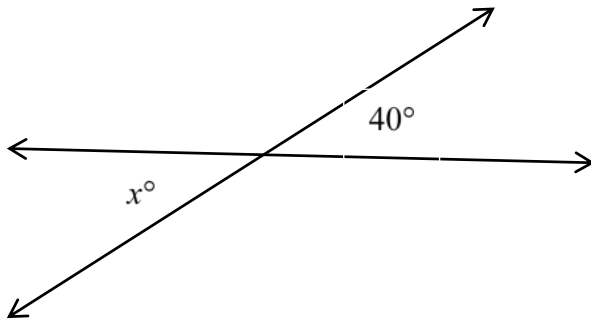
$$25^\circ + 60^\circ + x^\circ = 180^\circ$$

$$85^\circ + x^\circ = 180^\circ$$

$$85^\circ - 85^\circ + x^\circ = 180^\circ - 85^\circ$$

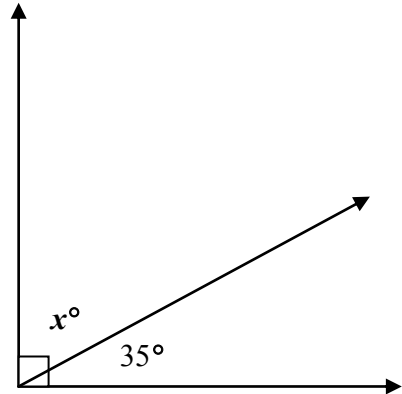
$$x^\circ = 95^\circ$$

1.



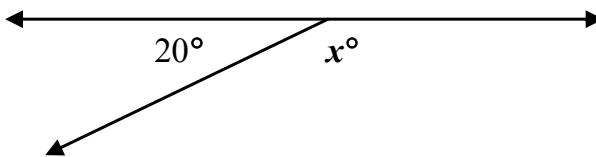
The missing angle measure is 40°
Because the two angles are vertical angles
their measures are equal.

2.



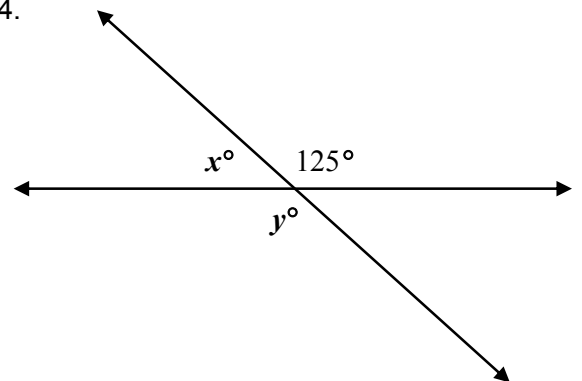
$$\begin{aligned}x^\circ + 35^\circ &= 90^\circ \\x^\circ + 35^\circ - 35^\circ &= 90^\circ - 35^\circ \\x^\circ &= 55^\circ\end{aligned}$$

3.



$$\begin{aligned}x^\circ + 20^\circ &= 180^\circ \\x^\circ + 20^\circ - 20^\circ &= 180^\circ - 20^\circ \\x^\circ &= 160^\circ\end{aligned}$$

4.



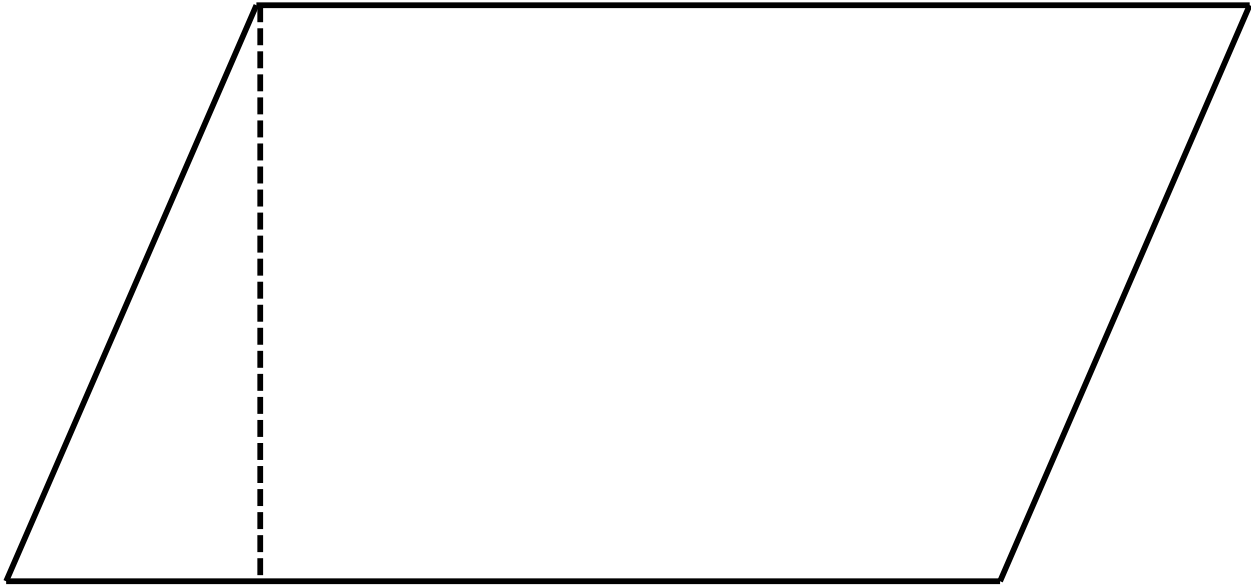
$$\begin{aligned}x^\circ + 125^\circ &= 180^\circ \\x^\circ + 125^\circ - 125^\circ &= 180^\circ - 125^\circ \\x^\circ &= 55^\circ\end{aligned}$$

If x is 55° , then y is its
supplement.

$$180^\circ - 55^\circ = y^\circ$$

$$125^\circ = y^\circ$$

Investigation #2
 Area of a Triangle
 Standards: MG 1.3



Remind students how to find the area of a parallelogram: $A = bh$

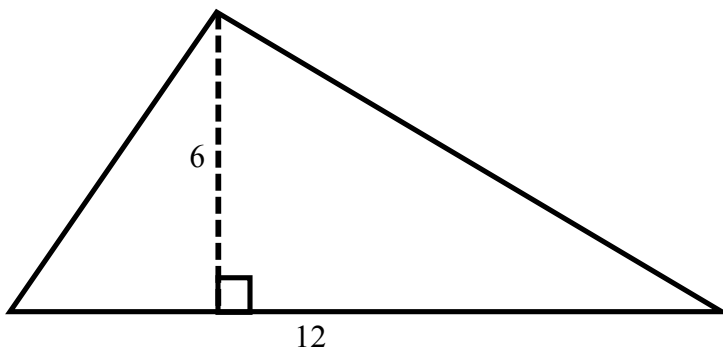
1. Have students draw a diagonal across the parallelogram.
2. Cut out along the diagonal.
3. Students should notice that two triangles have been formed.
4. Prompt students to discover the area formula.

*"If the area of a parallelogram is $A = bh$, then how can we describe the area of this triangle?" (It would be $\frac{1}{2}$ of the parallelogram)

*If the area of this triangle is $\frac{1}{2}$ of the area of the parallelogram, how can we write the area formula? ($A = \frac{1}{2}bh$)

Example #1:

Find the area of the triangle in centimeters.



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

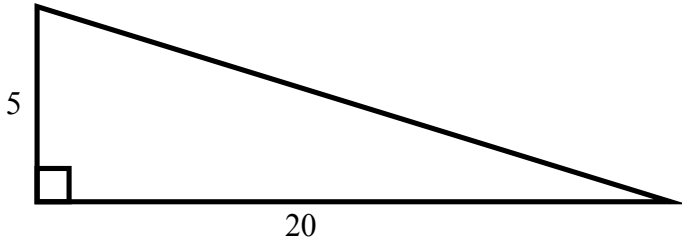
$$A = \frac{12 \text{ cm} \cdot 6 \text{ cm}}{2}$$

$$A = \frac{\cancel{2} \cdot 6 \cdot 6 \cdot \text{cm} \cdot \text{cm}}{\cancel{2}}$$

$$A = 36 \text{ cm}^2$$

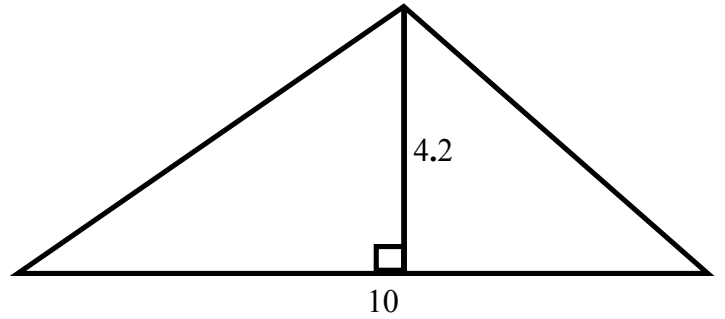
You Try#1

Find the area of the triangle in meters.



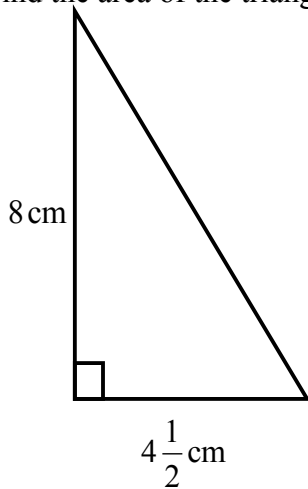
You Try#2

Find the area of the triangle in inches.

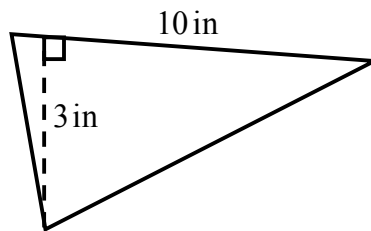


Independent Practice:

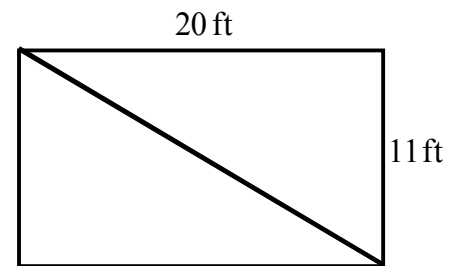
1. Find the area of the triangle.



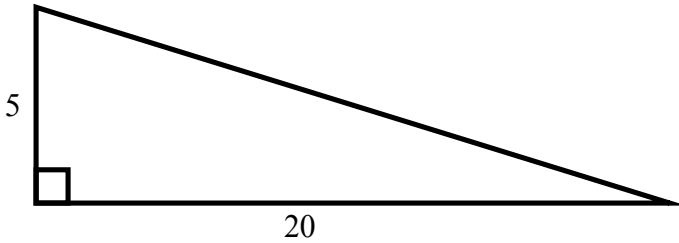
2. Find the area of the triangle.



3. What is the area of the shaded figure?



Worked Out Solutions:

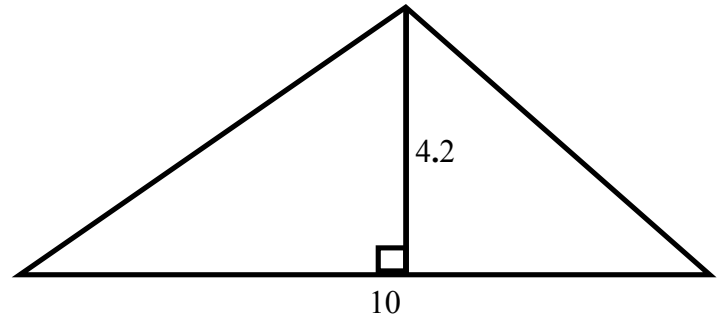


$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2}(20\text{ m})(5\text{ m})$$

$$A = (10\text{ m})(5\text{ m})$$

$$A = 50\text{ m}^2$$



$$A = \frac{1}{2}(10\text{ m})\left(4\frac{2}{10}\text{ m}\right)$$

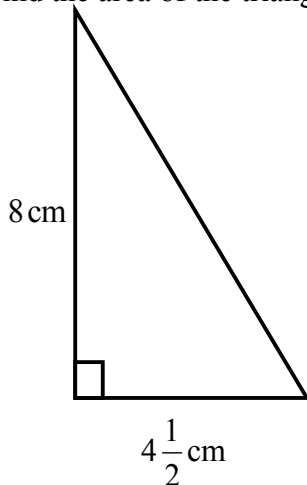
$$A = \frac{1}{2}(10\text{ m})\left(\frac{42}{10}\text{ m}\right)$$

$$A = \frac{1 \cdot 10 \cdot 42 \cdot \text{m} \cdot \text{m}}{2 \cdot 10}$$

$$A = \frac{1 \cdot \cancel{2} \cdot \cancel{2} \cdot 3 \cdot \cancel{5} \cdot 7}{\cancel{2} \cdot \cancel{2} \cdot \cancel{5}}$$

$$A = 7$$

1. Find the area of the triangle.



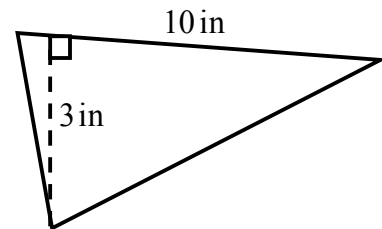
$$A = \frac{1}{2}(8\text{ cm})\left(4\frac{1}{2}\text{ cm}\right) \quad \left| \quad A = \frac{1}{2}(8\text{ cm})\left(4\frac{1}{2}\text{ cm}\right)$$

$$A = (4\text{ cm})\left(4\text{ cm} + \frac{1}{2}\text{ cm}\right) \quad \left| \quad A = (4\text{ cm})\left(\frac{9}{2}\text{ cm}\right)$$

$$A = 16\text{ cm}^2 + 2\text{ cm}^2 \quad \left| \quad A = \frac{36}{2}\text{ cm}^2$$

$$A = 18\text{ cm}^2 \quad \left| \quad A = 18\text{ cm}^2$$

2. Find the area of the triangle.

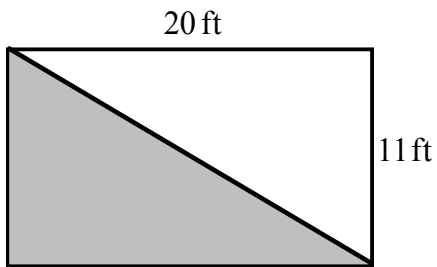


$$A = \frac{1}{2}(10\text{ in})(3\text{ in})$$

$$A = (5\text{ in})(3\text{ in})$$

$$A = 15\text{ in}^2$$

3. What is the area of the shaded figure?



$$A = \frac{1}{2}(20 \text{ ft})(11 \text{ ft})$$

$$A = (10 \text{ ft})(11 \text{ ft})$$

$$A = 110 \text{ ft}^2$$

Investigation #3

Transversals/ Alternate Interior Angles

Standards: MG 2.0, 2.1

MR 2.0, 2.4

- Explain to students the definition of a transversal
- As students look at the picture of a **transversal** (see below) they should notice that 8 angles are formed.
- Have the discussion about the types of angles, i.e. which angles are complimentary and which angles are supplementary.
- Have students cut the picture in half, so that the angles will overlap. From this students will be able to see the **corresponding angles**
- From here a discussion can begin about **interior**, **alternate interior**, **exterior** and **alternate exterior** angles.

