Panel 1
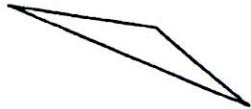
Be able to do the following:
- *use correct mathematics vocabulary
- *identify types of triangles
- *find missing angles in a triangle
- *analyze data to see if a triangle can be formed

Panel 2

Types of Triangles

Classify by angles	Classify by sides
acute - all three angles are less than 90°	**scalene** - no sides are congruent (all sides different)
obtuse - exactly one angle is greater than 90°	**equilateral** - all sides congruent
right - exactly one 90° angle	**isosceles** - two sides congruent

Panel 3

The sum of the angles in any triangle is 180°.

Find the measure of x.

$60 + 32 + x = 180$

$$92 + x = 180$$
$$-92 \qquad -92$$
$$x = 88$$

60°   32°   x

88°

Panel 4
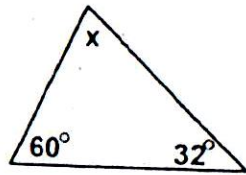
Is it possible to have a triangle that is a right isosceles triangle?

yes

yes

1 90° angle
2 congruent sides
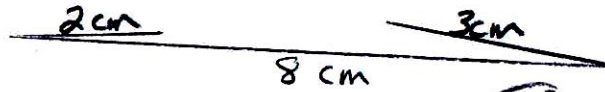
Is it possible to have an acute scalene triangle?
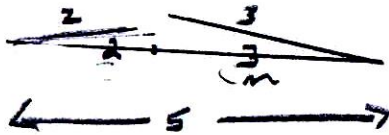
59°   60°   61°

51   60   69

yes

3 angles ∠90°
3 different sides
3 different angles

Is it possible to make a triangle that has sides of 2cm, 3cm, and 8cm? Why or why not?

2cm   3cm

8 cm

(NO)

Is it possible to make a triangle that has sides of 2cm, 3cm, and 5cm? Why or why not?

2   3

2   3
cm

←— 5 —→

(NO)

△ Inequality Theorem

In a triangle, we know the angles must have a sum of 180°. What must be true about the three sides of a triangle?

The sum of the 2 smallest sides must be greater than 3rd side

If 2 3 [?] are 3 sides,

Then 1 < [?] < 5

If 10 12 [?] are 3 sides,

Then 2 < [?] < 22

The measures of the angles in a triangle are in the rato of 1:3:6. Find the measures of these angles algebraically.

$X = 1^{st}$ 18°

$3X = 2^{nd}$ $3(18) = 54°$

$6X = 3^{rd}$ $6(18) = 118°$

$X + 3X + 6X = 180$

$10X = 180$
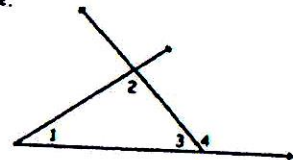
$\dfrac{10X}{10} = \dfrac{180}{10}$

$X = 18$

How does an exterior angle of a triangle relate to the angles in a triangle? In this triangle, <4 is an exterior angle.
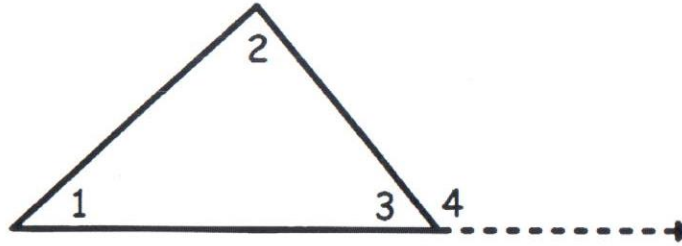
Statement	Reasons

* (see next page)

Accelerated Math (11.2)
Exterior Angle of a Triangle Theorem

Name____Teacher Notes____
Block ____   Date____

Steps	Reasons
1) m∠1 + m∠2 + m∠3 = **180**	1) Sum of angles in a triangle is 180 degrees
2) m∠3 + m∠4 = **180**	2) ∠3 and ∠4 are supplementary so they add up to 180
3) m∠1 + m∠2 + m∠3 = m∠3 + m∠4	3) Property of Equality – Since both sides = 180, they must equal each other
4) m∠1 + m∠2 = m∠4	4) Subtraction Property of Equality–subtract m∠3 from both sides of the equation

Therefore, *An exterior angle of a triangle is equal to the sum of the opposite interior angles.*