3/1/17 CCM6+7+

Classify triangles by angles and learn how to use the triangle sum theorem to find missing triangle angle measures.

1. Write in agenda...HW is page 38-39...Test Tuesday
2. Get out page 34 to check.
3. Complete the Wed warm-ups NO CALC

FINISH QUIZ as needed

Wednesday	Combine like terms. $6r^2 + 9s + 5s + 7 + r + 2r^2$ $8r^2 + 14s + 7 + r$	Evaluate $\left[\frac{2}{7}(x^2 - 2)\right]^4$ if $x = 3$ $\left[\frac{2}{\cancel{7}_1} \cdot \frac{\cancel{7}^1}{1}\right]^4$ $2^4 = 16$	Problem 2 1 6

✓ HW

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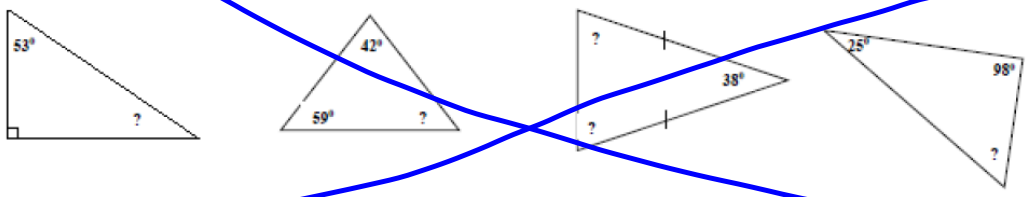
Fill in the missing information for each triangle named.

TRIANGLE	Length of Side 1	Length of Side 2	Length of Side 3	Sum of all Sides	Name of Triangle by Sides
Triangle MAD	12 mm	18	12 mm	42 mm	Isos.
Triangle ZEN	15	15 mm	15	45 mm	Equilateral Δ
Triangle POD	5 mm	9 mm	14	28 mm	Scalene
Triangle CAT	20	20	20	60 mm	Equilateral Δ
Triangle CRY	8	8 mm	13 mm	29 mm	Isosceles Δ

Identify the missing measurement for each triangle below and then classify the triangle by its angles. DO NOT USE A PROTRACTOR. (Triangles shown are not to scale.)



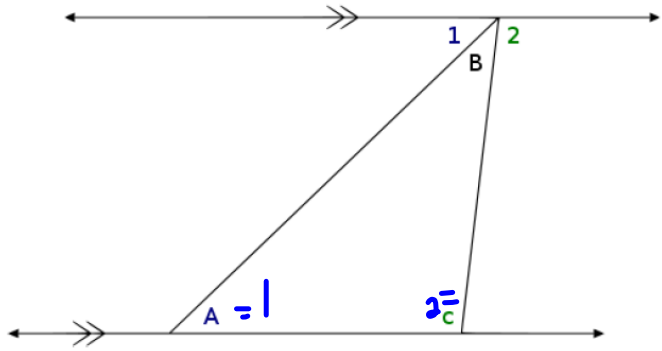
Missing Measure: _____ Name: _____	Missing Measure: _____ Name: _____	Missing Measure: _____ Name: _____	Missing Measure: _____ Name: _____

Making Connections - Parallel Lines and the Triangle Sum Theorem

sum △ angles always 180

How can I show that the sum of the interior angles of a triangle is equal to 180° using what I know about the relationships between the angles of parallel lines cut by a transversal?

Use the following figure to answer the questions that follow.



1. Knowing that angle 1, angle B and angle 2 form a straight line, what is their sum? 180
2. What kind of angles are angle C and angle 2? What is their relationship? AI → ≅
3. What kind of angles are angle A and angle 1? What is their relationship? AI → ≅
4. Based on your answers to questions 1 – 3, how do you know that the sum of the angle A, angle B, and angle C is 180°?

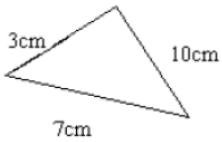
TRIANGLE SUM THEOREM:

The sum of all 3 angles of a triangle ALWAYS EQUALS 180°.

Triangle Homework

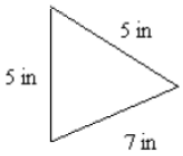
For #1-4, name the triangle

1) Scalene



2) equilateral

3) isosceles



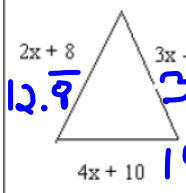
4) Scalene

For numbers 5-8, find the missing side length.

5) The perimeter of an equilateral triangle is 45cm. What is the length of each side?

15

6) If the perimeter of the triangle below is 36in find the value of x and the length of each side.



$12.\overline{9}$ $3.\overline{3}$ $19.\overline{7}$

$9x + \cancel{7} - \cancel{14} = 36 - 14 - 14$

$9x = 22$

$x = 2\frac{4}{9}$

7) Two sides of an isosceles triangle are 4 less than twice the value of the third side. If the perimeter of the triangle is 42cm, what is the value of x? What are the lengths of the 3 sides?

10, 16, 16

$x + 2x - 4 + 2x - 4 = 42$

$5x - \cancel{8} = 42$
$+8 \quad +8$

$5x = 50$
$x = 10$

8) The perimeter of an equilateral triangle is 108in. Find the length of each side.

36

An isosceles triangle has the same perimeter, what can be the lengths of the sides?

$2x + y = 108$

37, 37, 34

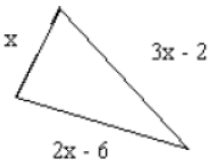
38, 38, 32

For numbers 9-12, state whether the sides can form a triangle

9) 2cm, 6cm, 4cm ✗	10) 9cm, 11cm, 4cm ✓
11) 15cm, 7cm, 9cm ✓	12) 60cm, 60cm, 20cm ✓

Find the value of x and the measurement of each side:

1) x = _____
Side 1=_____
Side 2 =_____
Side 3=_____



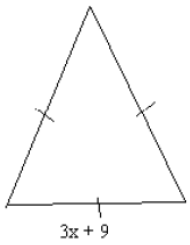
Perimeter = 40

2) x = _____
Side 1=_____
Side 2 =_____
Side 3=_____

Perimeter = 22 cm

3) x = _____
Side 1=_____
Side 2 =_____
Side 3=_____

Perimeter = 71m



HW

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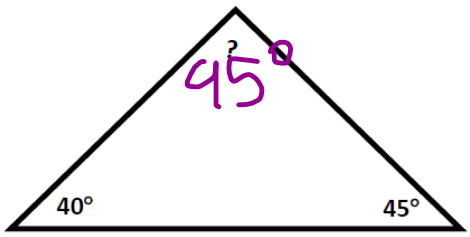
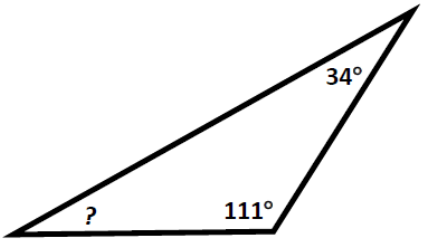
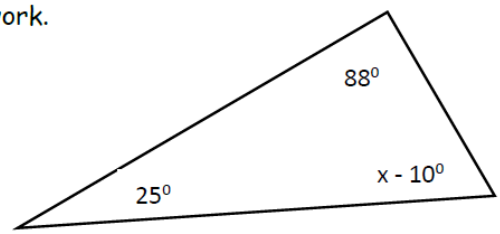
Find each missing angle measure.

1. 	2. In a triangle the measure of two of the angles is 35° and 65°. Find the measure of the third angle. 80°
3. In triangle *DEF* the measure of angle *D* is 33° and the measure of angle *E* is 97°. Find the measure of angle *F*.	4. 
5. Triangle *ABC* is a right triangle. The measure of angle *A* is 37°. Find the measures of angle *B* and *C*.	6. Four isosceles triangles cap the Smith Tower in Seattle. If one of the base angles measures 65°, what are the measures of the other two angles?
7. Find the missing angle measure without using a protractor. Triangle is not drawn to scale. Set up an equation and show your work. 	8. Draw a triangle and give it the following measures then list the measure of all three angles. $m\angle 1 = 102^0$, $m\angle 2 = x + 2$, and $m\angle 3 = x + 20$. $m\angle 1$ = _____ $m\angle 2$ = _____ $m\angle 3$ = _____

9. Can you draw a right triangle that is also an isosceles triangle? Explain.

10. Can a triangle have more than one obtuse angle? Explain.

HW

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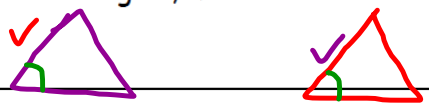
Tell if the following combinations are lengths that could create a triangle.

11. 3, 5, 9 12. 8, 8, 8 13. 7, 8, 2

How did you determine the answers to #11-13?

14. In congruent triangles, what is true about corresponding sides? $\cong$



15. In congruent triangles, what is true about corresponding angles? $\cong$