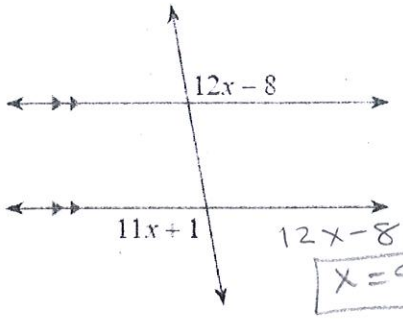
**Geometry**
**Triangle Angles**

Name: _____
Date: Key

WARM-UP:

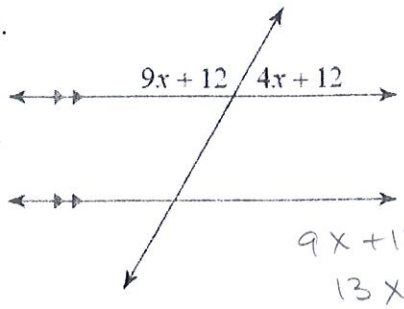
1.




$12x - 8 = 11x + 1$

$x = 9$

2.




$9x + 12 + 4x + 12 = 180$

$13x + 24 = 180$

$13x = 156$

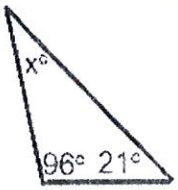
$x = 12$

## TRIANGLE SUM

The sum of the measures of the interior angles of a triangle is 180°.

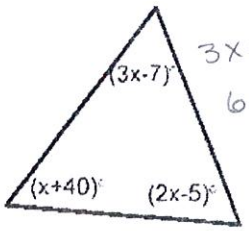
Find the value of x in each figure.

1. x = 63°




$180 - 96 - 21$

2. x = $25.\overline{3}$




$3x - 7 + x + 40 + 2x - 5 = 180$

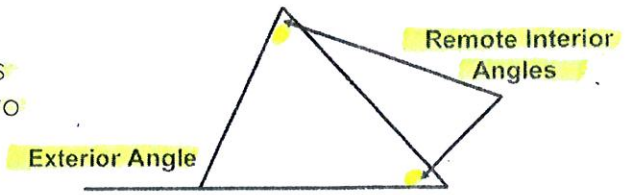
$6x + 28 = 180$

$6x = 152$

$x = 25.\overline{3}$

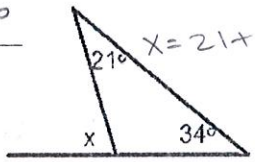
## EXTERIOR ANGLE THEOREM

The measure of an exterior angle of a triangle is equal to the Sum of the measures of the two remote interior angles.



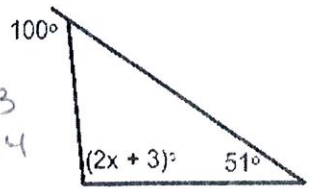

**Find the value of x in each figure.**

3. x = 55°




$x = 21 + 34$

4. x = 23




$100 = 51 + 2x + 3$

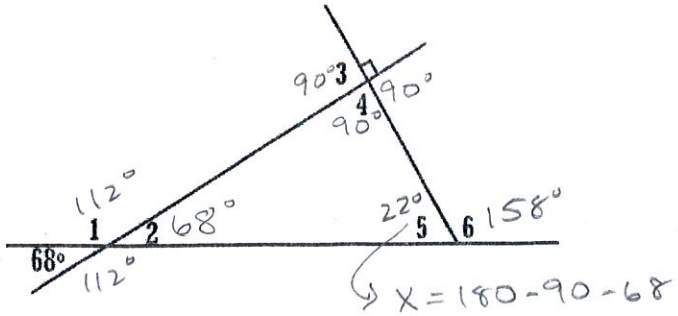
$100 = 2x + 54$

$46 = 2x$

$x = 23$

**Find the value of each numbered angle.**

5. m∠1 = 112°
6. m∠2 = 68°
7. m∠3 = 90°
8. m∠4 = 90°
9. m∠5 = 22°
10. m∠6 = 158°



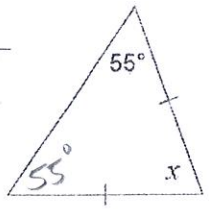

$x = 180 - 90 - 68$

$x = 22°$

## Isosceles Triangles & Base Angles

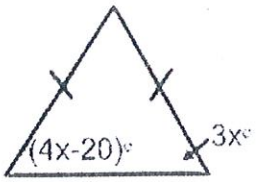
If two ***sides*** of a triangle are congruent, then the base angles of those sides are congruent.

5. x = 70°




180 - 55 - 55 = X

6. x = 20



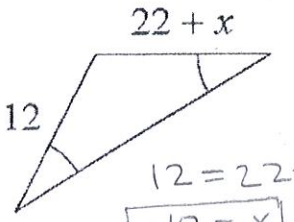

4X - 20 = 3X

-20 = -X

X = 20

If two ***angles*** of a triangle are congruent, then the sides opposite those angles are congruent.

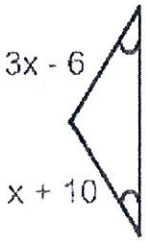
7. x = -10




12 = 22 + X

-10 = X

8. x = 8




3X - 6 = X + 10

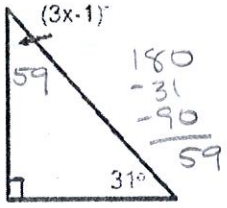
2X - 6 = 10

2X = 16

X = 8

**PRACTICE!!!**

1. x = 20



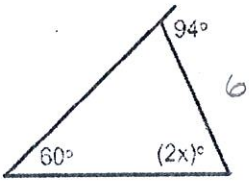

180
-31
-90
59

3X - 1 = 59

3X = 60

X = 20

2. x = 17



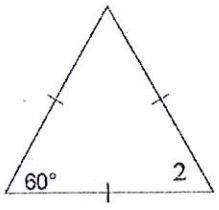

60 + 2X = 94

2X = 34

X = 17

3. x = -10

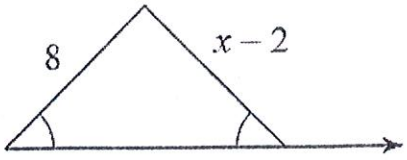
$m\angle 2 = x + 70$




X + 70 = 60

X = -10

4. x = 10




8 = X - 2

10 = X