Key

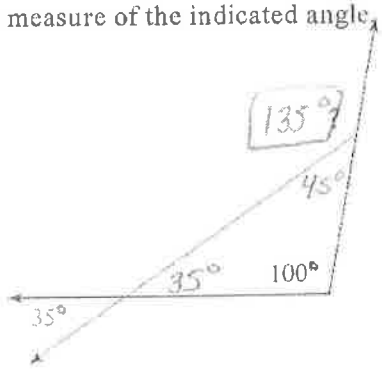
Math 1

Name KEY

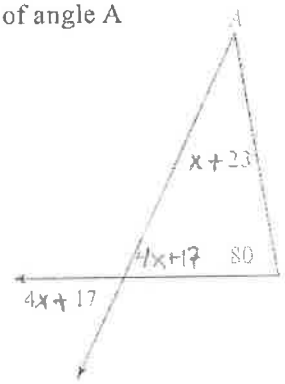
6-4 Triangle Properties Practice

1. Triangle Sum Theorem: All angles in a triangle sum to 180°

a. Find the measure of the indicated angle.



b. Find the measure of angle A



$(x+23)+(4x+17)+80 = 180$

$5x + 120 = 180$

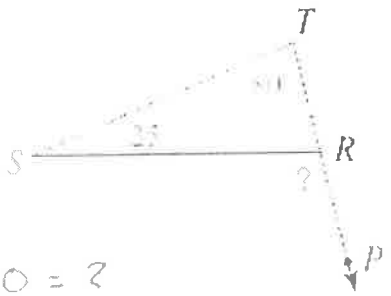
$5x = 60$

$x = 12$

$m\angle A = 35°$

2. Exterior Angle Theorem: Two interior angles of a triangle sum to the exterior angle of the 3rd angle.

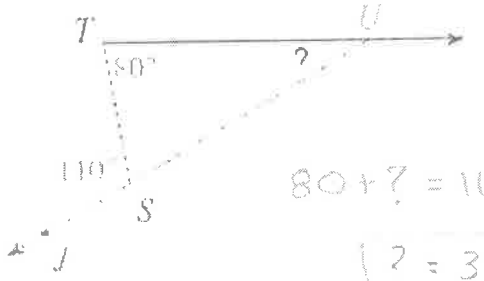
a. Find the measure of the indicated angle.



$25 + 80 = ?$

$105 = ?$

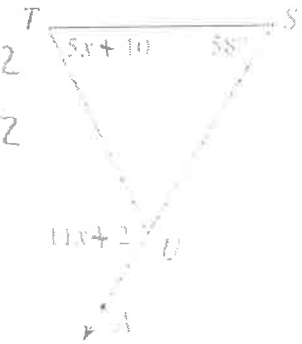
b. Find the measure of the indicated angle.



$80 + ? = 110$

$? = 30$

c. Solve for x.



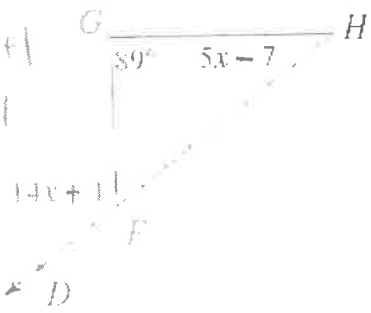
$5x + 10 + 58 = 11x + 2$

$5x + 68 = 11x + 2$

$66 = 6x$

$11 = x$

d. Find $m\angle H$



$89 + 5x - 7 = 14x + 1$

$82 + 5x = 14x + 1$

$81 = 9x$

$9 = x$

$m\angle H = 5(9) - 7$

$= 38°$

3. Triangle Inequality Theorem: The sum of the 2 smaller sides of a triangle should be GREATER than the largest side,

Could a triangle be formed with the following side lengths?

a. 7, (5), (4)

$5+4 > 7$

$9 > 7$ ✓

YES

b. 9, (6), (6)

$6+5 > 9$

$11 > 9$ ✓

YES

c. 3, 6, 2

$3+2 > 6$

$5 \not> 6$

NO

Two sides of a triangle are given. Find the range of possible measures for the third side.

d, 9, 5,

$5+x > 9$ or $9+5 > x$

$x > 4$ $\quad 14 > x$

$4 < x < 14$

e. 5, 8,

$5+x > 8$ or $5+8 > x$

$x > 3$ $\quad 13 > x$

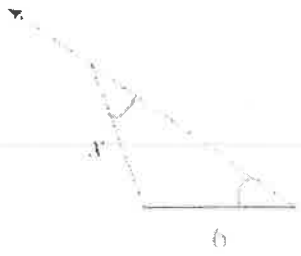
$3 < x < 13$

4. Isosceles Triangle Properties: 2 sides of a triangle are congruent

2 base angles of a triangle are congruent

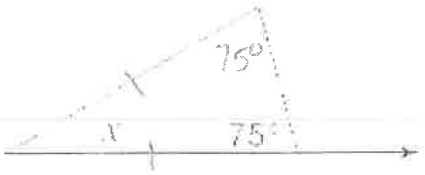
Find the value of x.

a.



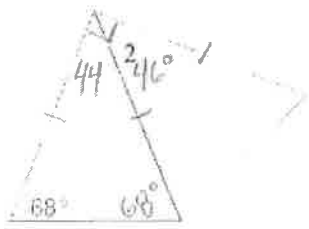
$X = 6$

b.



$X = 30°$

c. $m\angle 2 = 4x - 2$

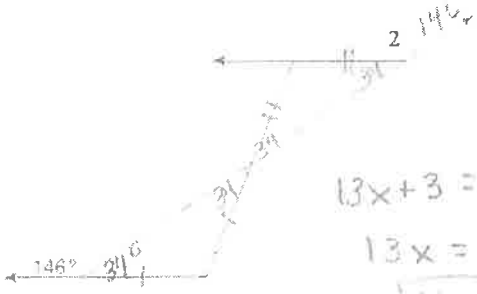


$4x - 2 = 46$

$4x = 48$

$x = 12$

d. $m\angle 2 = 13x + 3$



$13x + 3 = 146$

$13x = 143$

$X = 11$