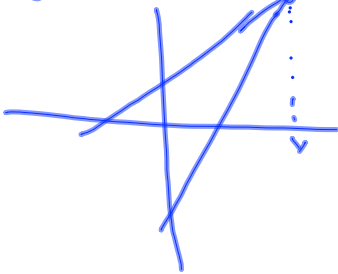


$$2x + 3 = 3x - 9$$

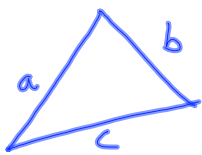
$$y = 2x + 3$$

$$y = 3x - 9$$



If two triangles have the same Area and the same perimeter, are they congruent?

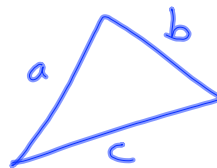
20, 21, 29



A = area
 p = perimeter
 s = semi-perimeter

If we have two triangles with the same A , p , and c then they are congruent.

In other words, A, p, c determine a and b .



A = area
 s = semi-perimeter

$$A^2 = s(s-a)(s-b)(s-c)$$

$$s = \frac{1}{2}(a+b+c)$$

Express a and b in terms of A, s, c

$$A^2 = s(s-a)(s-b)(s-c) \quad (1)$$

$$s = \frac{1}{2}(a+b+c) \quad (2)$$

$$b = \frac{2s-a-c}{2} \quad \begin{array}{l} \text{from (2)} \\ \text{sub into (1)} \end{array}$$

$$\frac{A^2}{s(s-c)} = (s-a)(s-b) = (s-a)(-s+a+c)$$

$$a^2 + (-2s+c)a + \frac{A^2}{s(s-c)} + s(s-c) = 0$$

$$a = \frac{(2s-c) \pm \sqrt{(-2s+c)^2 - 4 \frac{A^2}{s(s-c)} - 4s(s-c)}}{2}$$

$$b = \frac{1}{2} \dots 2$$

$$20, 21, 21$$

$$17, 25, 28$$

$$A=210$$

$$p=70$$