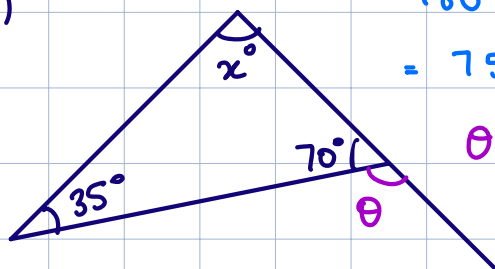


Exterior Angle of a Triangle

DO NOW

Find the missing angles.

a)



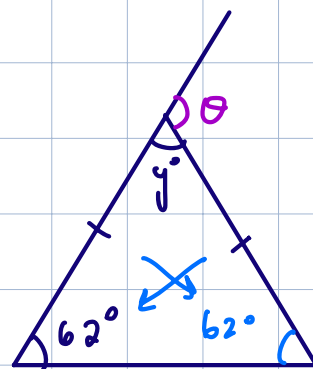
$$180 - (35 + 70)$$

$$= 75^\circ = x$$

$$\theta = 180 - 70$$

$$= 110^\circ$$

b)

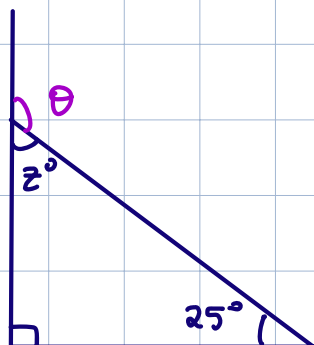


$$180 - (62 + 62) = 56^\circ = y$$

$$\theta = 180 - 56$$

$$= 124^\circ$$

c)



$$90 + 25 = 115^\circ$$

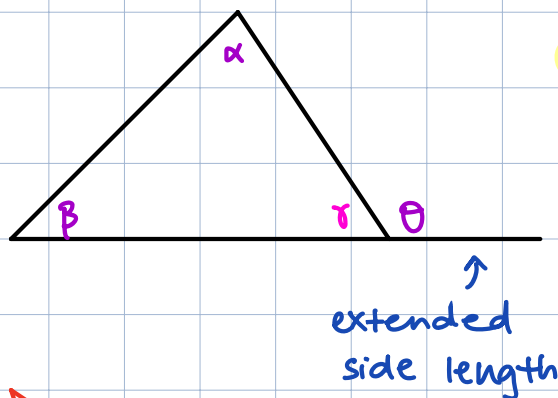
$$z = 180 - 115$$

$$= 65^\circ$$

$$\theta = 180 - 65^\circ$$

$$= 115^\circ$$

- The exterior angle of a triangle is equal to the sum of the two opposite interior angles.



$$\gamma = 180 - (\alpha + \beta) \quad (\angle \text{ sum of } \Delta)$$

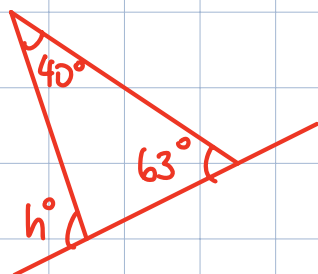
$$\theta = 180 - \gamma \quad (\angle \text{ s on a straight line})$$

$$= 180 - (180 - (\alpha + \beta))$$

$$= 180 - 180 + (\alpha + \beta)$$

$$= \alpha + \beta \quad (\text{ext. } \angle \text{ of } \Delta)$$

eg.

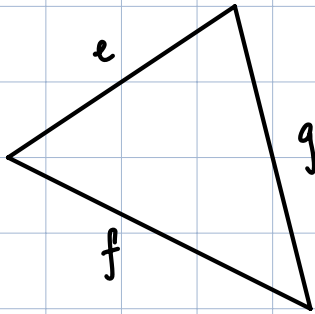


$$h = 40 + 63$$

$$= 103^\circ$$

Triangle Inequality

For any triangle, the sum of two sides must be greater than the remaining side.



$$e + g > f$$

$$f + g > e$$

$$e + f > g$$

eg. Will three lengths 3, 5, 9 be able to make a triangle?

No, $3 + 5 < 9$