

Outcome 2 - The Sine Rule

Bronze example

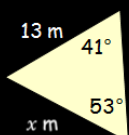
Examples...

Find the length of the missing side...

- Substitute into formula...
- Cross multiply...
- Divide...

$$\frac{x}{\sin 41} = \frac{13}{\sin 53}$$

$$x \sin 53 = 13 \sin 41$$

$$x = \frac{13 \sin 41}{\sin 53} = 10.68 \text{ m}$$


Silver example

Examples...

Find the length of the missing side...

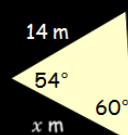
- Substitute into formula...
- Cross multiply...
- Divide...

$$\frac{x}{\sin 66} = \frac{14}{\sin 60}$$

$$x \sin 60 = 14 \sin 66$$

$$x = \frac{14 \sin 66}{\sin 60} = 14.77 \text{ m}$$

$$54 + 50 = 114$$

$$180 - 114 = 66$$


Gold example

Examples...

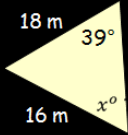
Calculate the size of the missing angle...

- Substitute into formula...
- Cross multiply...
- Divide...
- Inverse sine...

$$\frac{16}{\sin 39} = \frac{18}{\sin x}$$

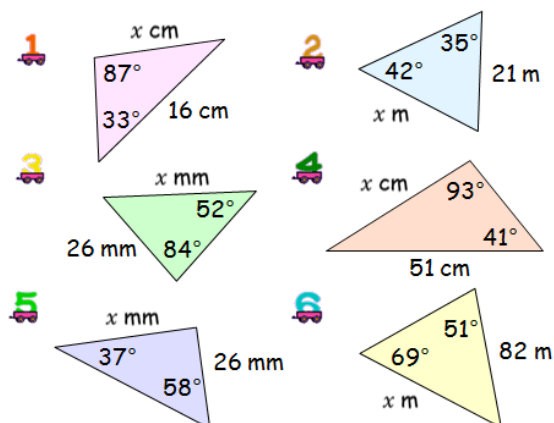
$$16 \sin x = 18 \sin 39$$

$$\sin x = \frac{18 \sin 39}{16} = 0.707...$$

$$x = \sin^{-1} 0.707... = 45.07^\circ$$


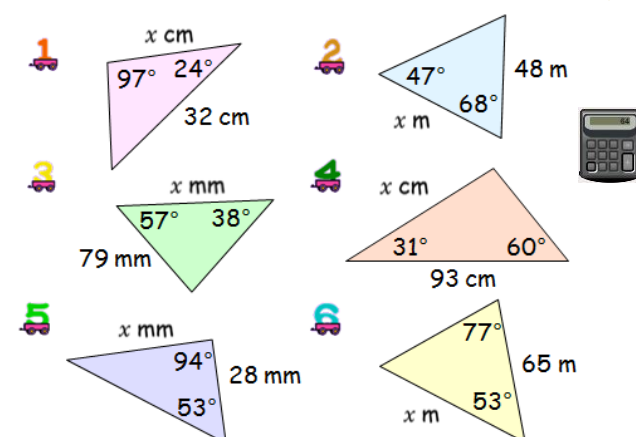
Bronze Questions

Find the missing sides in the following triangles...



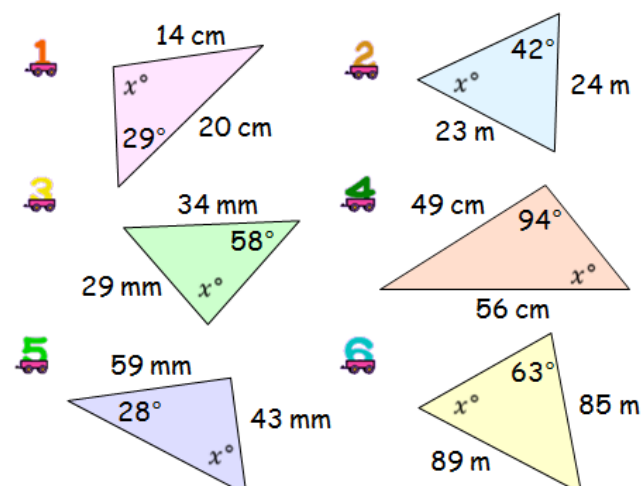
Silver Questions

Find the missing sides in the following triangles...



Gold Questions

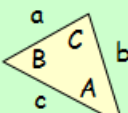
Find the missing angles in the following triangles...



Take a Note!

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

****opposites****



Bronze Answers

- | | | | |
|----|----------|----|----------|
| 1. | 8.73 cm | 2. | 18.0 m |
| 3. | 32.81 mm | 4. | 33.50 cm |
| 5. | 36.64 mm | 6. | 68.26 m |

Silver Answers

- | | | | |
|----|-----------|----|----------|
| 1. | 27.64 cm | 2. | 59.48 m |
| 3. | 127.83 mm | 4. | 80.55 cm |
| 5. | 41.06 mm | 6. | 82.68 m |

Gold Answers

- | | | | |
|----|--------|----|--------|
| 1. | 43.84° | 2. | 44.28° |
| 3. | 83.86° | 4. | 60.79° |
| 5. | 40.10° | 6. | 58.32° |