

Outcome 1 - Calculating the length of an arc

Bronze examples

Examples... $\text{arc} = \frac{\text{angle}}{360} \times \pi D$

Calculate the length of the MINOR arc... Diameter 30 cm

$\text{arc} = 21 \div 360 \times 3.14 \times 30$
 $= 5.50 \text{ cm}$

Calculate the length of the MAJOR arc... Diameter 59 mm

$\text{arc} = 220 \div 360 \times 3.14 \times 59$
 $= 113.21 \text{ mm}$

Silver examples

Examples... $\text{arc} = \frac{\text{angle}}{360} \times \pi D$

diameter = 2 × radius

Calculate the length of the MINOR arc... 12 m

$\text{arc} = 29 \div 360 \times 3.14 \times 24$
 $= 6.07 \text{ m}$

Calculate the length of the MAJOR arc... 25 cm

$\text{arc} = 192 \div 360 \times 3.14 \times 50$
 $= 83.73 \text{ cm}$

Gold examples

Examples... $\text{arc} = \frac{\text{angle}}{360} \times \pi D$

- Sub into formula
- Side calculation
- Divide

Diameter = ? Arc 48°

$8.37 = 48 \div 360 \times 3.14 \times ?$
 $(48 \div 360 \times 3.14 = 0.4187)$
 $? = 8.37 \div 0.4187 = 20 \text{ m (to nearest m)}$

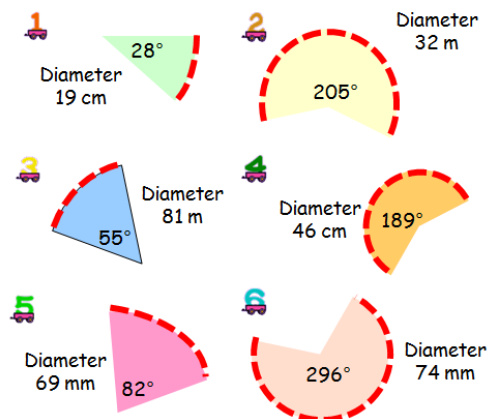
Arc 53.31 mm • Multiply by 360°

Diameter 32 mm

$53.31 = ? \div 360 \times 3.14 \times 32$
 $(3.14 \times 32 = 100.48)$
 $53.31 \div 100.48 = 0.5305...$
 $? = 360 \times 0.5305... = 191^\circ$

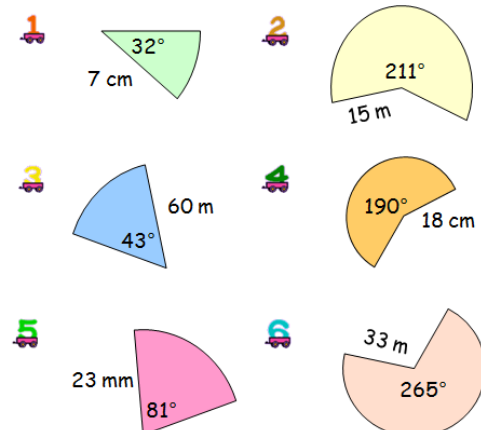
Bronze Questions

Calculate the lengths of the following arcs...



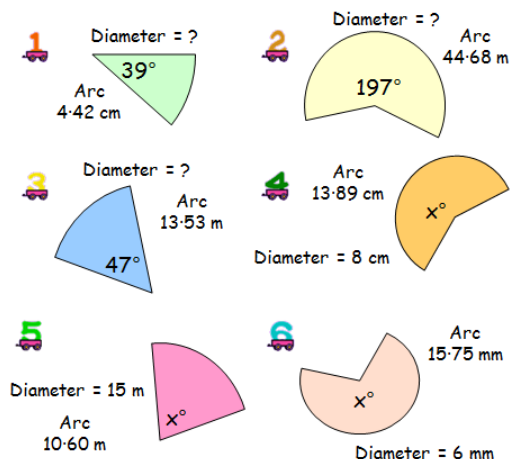
Silver Questions

Calculate the lengths of the following arcs...



Gold Questions

Calculate following diameters/angles to the nearest whole number...



Bronze Answers

- | | |
|-------------|--------------|
| 1. 4.64 cm | 2. 57.22 m |
| 3. 38.86 m | 4. 75.83 cm |
| 5. 49.35 mm | 6. 191.05 mm |

Silver Answers

- | | |
|-------------|-------------|
| 1. 3.91 cm | 2. 55.21 m |
| 3. 45.01 m | 4. 59.66 cm |
| 5. 32.50 mm | 6. 152.55 m |

Gold Answers

- | | |
|---------------|----------------|
| 1. 13 cm | 2. 26 m |
| 3. 33 m | 4. 199° |
| 5. 81° | 6. 301° |