

Outcome 2 - Calculating the area of a sector

Bronze examples

Examples... $\text{sector} = \frac{\text{angle}}{360} \times \pi r^2$

Calculate the area of the MINOR sector...

← 18 m →
29°

$$\text{sector} = 29 \div 360 \times 3.14 \times 18^2$$

$$= 81.95 \text{ m}^2$$

Calculate the area of the MAJOR sector...

192°
27 cm

$$\text{sector} = 192 \div 360 \times 3.14 \times 27^2$$

$$= 1220.83 \text{ cm}^2$$

Silver examples

Examples... $\text{sector} = \frac{\text{angle}}{360} \times \pi r^2$

radius = $\frac{1}{2} \times \text{diameter}$

Calculate the area of the MINOR sector...

Diameter 30 cm
24°

$$\text{sector} = 24 \div 360 \times 3.14 \times 15^2$$

$$= 47.1 \text{ cm}^2$$

Calculate the area of the MAJOR sector...

210°
Diameter 70 mm

$$\text{sector} = 210 \div 360 \times 3.14 \times 35^2$$

$$= 2243.79 \text{ mm}^2$$

Gold examples

Examples... $\text{sector} = \frac{\text{angle}}{360} \times \pi r^2$

- Sub into formula
- Side calculation
- Divide

← ? cm →
Sector 27°
11.54 cm²

$$11.54 = 27 \div 360 \times 3.14 \times ?^2$$

$$(27 \div 360 \times 3.14 = 0.2355)$$

$$11.54 \div 0.2355 = 49.002...$$

$$? = \sqrt{49.002} = 7 \text{ cm (to nearest cm)}$$

Sector 199.94 m²

- Square root!!!
- Multiply by 360°

$$199.94 = ? \div 360 \times 3.14 \times 9^2$$

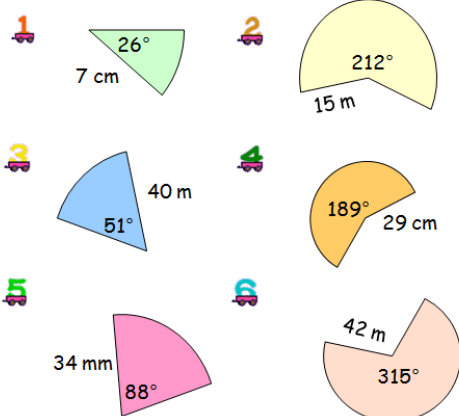
$$(3.14 \times 9^2 = 254.34)$$

$$199.94 \div 254.34 = 0.7861...$$

$$? = 360 \times 0.7861 = 283^\circ$$

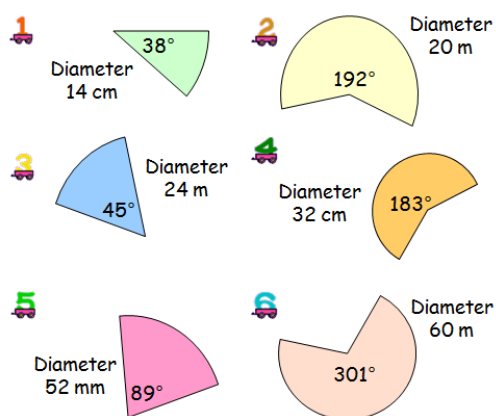
Bronze Questions

Calculate the areas of the following sectors...



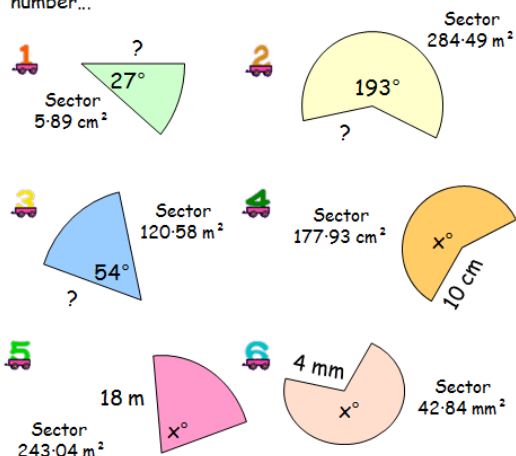
Silver Questions

Calculate the areas of the following sectors...



Gold Questions

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



Bronze Answers

- | | |
|--------------------------|---------------------------|
| 1. 11.11 cm^2 | 2. 416.05 m^2 |
| 3. 711.73 m^2 | 4. 1386.39 cm^2 |
| 5. 887.29 mm^2 | 6. 4846.59 m^2 |

Silver Answers

- | | |
|--------------------------|--------------------------|
| 1. 16.24 cm^2 | 2. 167.47 m^2 |
| 3. 56.52 m^2 | 4. 408.62 cm^2 |
| 5. 524.76 mm^2 | 6. 2362.85 m^2 |

Gold Answers

- | | |
|---------------|----------------|
| 1. 5 cm | 2. 13 m |
| 3. 16 m | 4. 204° |
| 5. 86° | 6. 307° |