

Outcome 1 - The Area of a Triangle

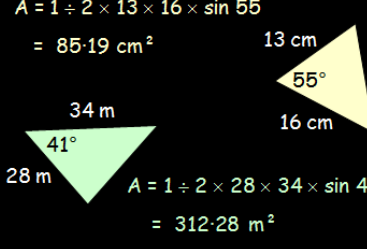
Bronze examples

Examples... • Substitute into formula...

Find the areas of the following triangles...

$A = \frac{1}{2} \times 13 \times 16 \times \sin 55$
 $= 85.19 \text{ cm}^2$

$A = \frac{1}{2} \times 28 \times 34 \times \sin 41$
 $= 312.28 \text{ m}^2$



Silver examples

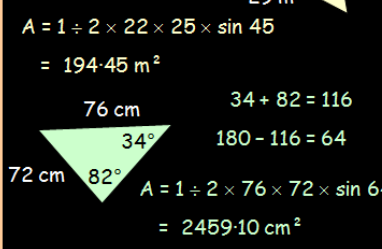
Examples... • Substitute into formula...

Find the areas of the following triangles...

$A = \frac{1}{2} \times 22 \times 25 \times \sin 45$
 $= 194.45 \text{ m}^2$

$A = \frac{1}{2} \times 76 \times 72 \times \sin 64$
 $= 2459.10 \text{ cm}^2$

$34 + 82 = 116$
 $180 - 116 = 64$



Gold examples

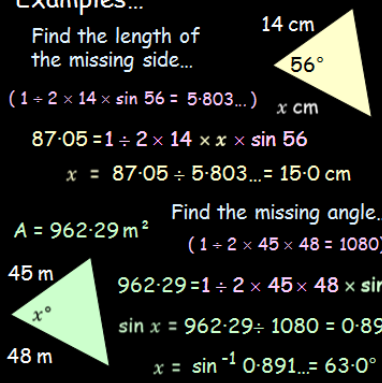
Examples... $A = 87.05 \text{ cm}^2$

Find the length of the missing side...

$(\frac{1}{2} \times 14 \times \sin 56 = 5.803...)$ $x \text{ cm}$
 $87.05 = \frac{1}{2} \times 14 \times x \times \sin 56$
 $x = 87.05 \div 5.803... = 15.0 \text{ cm}$

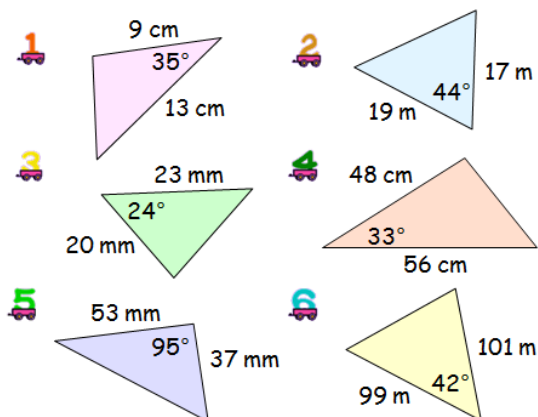
Find the missing angle...

$A = 962.29 \text{ m}^2$
 $(\frac{1}{2} \times 45 \times 48 = 1080)$
 $962.29 = \frac{1}{2} \times 45 \times 48 \times \sin x$
 $\sin x = 962.29 \div 1080 = 0.891...$
 $x = \sin^{-1} 0.891... = 63.0^\circ$



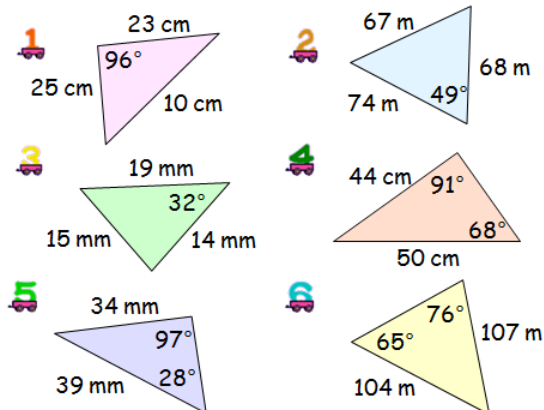
Bronze Questions

Find the areas of the following triangles...



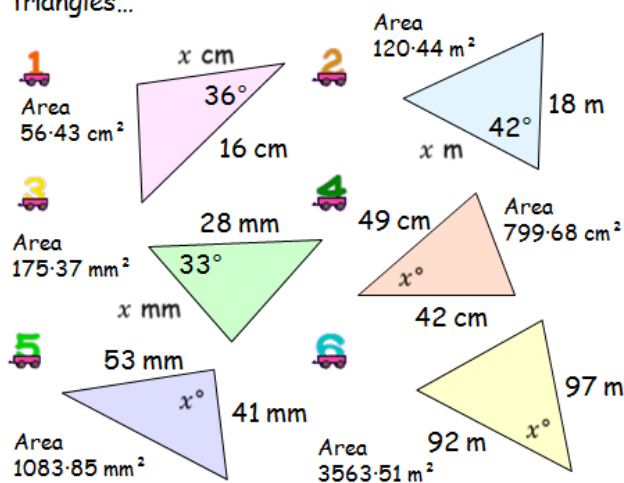
Silver Questions

Find the areas of the following triangles...



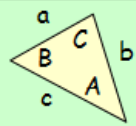
Gold Questions

Find the missing sides and angles in the following triangles...



Take a Note! $A = \frac{1}{2} ab \sin C$

****Two sides and an included angle****



Bronze Answers

- | | | | |
|----|-----------------------|----|-----------------------|
| 1. | 33.55 cm^2 | 2. | 112.19 m^2 |
| 3. | 93.55 mm^2 | 4. | 731.99 cm^2 |
| 5. | 976.77 mm^2 | 6. | 3345.32 m^2 |

Silver Answers

- | | | | |
|----|-----------------------|----|-----------------------|
| 1. | 285.93 cm^2 | 2. | 1898.85 m^2 |
| 3. | 70.48 mm^2 | 4. | 394.20 cm^2 |
| 5. | 543.10 mm^2 | 6. | 3501.54 m^2 |

Gold Answers

- | | | | |
|----|-------------------|----|------------------|
| 1. | 12.0 cm | 2. | 20.0 m |
| 3. | 23.0 mm | 4. | 51.0° |
| 5. | 86.0° | 6. | 53.0° |