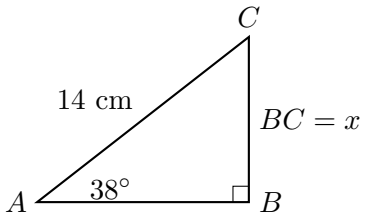
# Right-Angle Trigonometry — Find a Missing Side

**Core Worksheet**

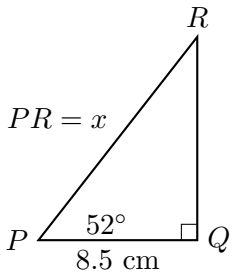
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## Worked Examples & Guided Practice

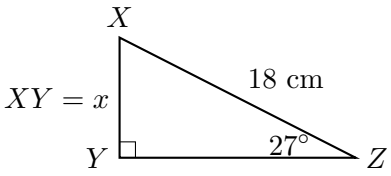
**I Do (Teacher Model)** In triangle $ABC$, angle $B = 90°$, angle $A = 38°$, and hypotenuse $AC = 14$ cm. Calculate the length of $BC$. Give your answer to 3 significant figures.



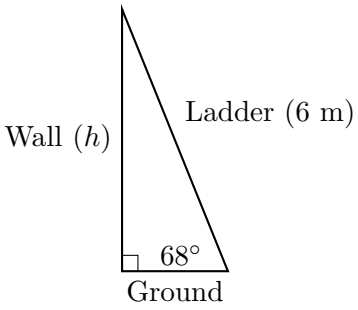

**We Do (Guided Practice)** In triangle $PQR$, angle $Q = 90°$, angle $P = 52°$, and $PQ = 8.5$ cm. Calculate the length of $PR$. Give your answer to 3 significant figures.




**You Do (Independent Practice)** In triangle $XYZ$, angle $Y = 90°$, angle $Z = 27°$, and $XZ = 18$ cm. Calculate the length of $XY$. Give your answer to 3 significant figures.




**Challenge (Extension)** A 6 m ladder rests against a vertical wall, making an angle of 68° with the horizontal ground. Calculate how far up the wall the ladder reaches. Give your answer to 3 significant figures.




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## Practice Perfect Questions

**Q1.** In right-angled triangle $ABC$, hypotenuse $AC = 12$ cm and angle $BAC = 35°$. Calculate $BC$ to 3 s.f.

**Q2.** In right-angled triangle $DEF$, angle $E = 90°$, adjacent side $DE = 9$ cm, and angle $D = 42°$. Calculate opposite side $EF$ to 3 s.f.

**Q3.** In right-angled triangle $JKL$, angle $K = 90°$, opposite side $JL = 15$ cm, and angle $J = 58°$. Calculate adjacent side $JK$ to 3 s.f.

**Q4.** Calculate the height of a building that casts a shadow of 24 m when the angle of elevation of the sun is 31°. Give your answer to 3 s.f.

**Q5.** In right-angled triangle $PQR$, hypotenuse $PR = 22$ cm and angle $R = 40°$. Calculate $PQ$ to 3 s.f.

**Q6.** A ramp is inclined at an angle of 12° to the horizontal. If the horizontal length of the ramp base is 8.4 m, calculate the direct length of the ramp surface to 3 s.f.

## Answers & Worked Solutions

### Model Solutions

- **I Do:** $BC = 14 \times \sin(38°) = 8.62$ cm
- **We Do:** $PR = \dfrac{8.5}{\cos(52°)} = 13.8$ cm
- **You Do:** $XY = 18 \times \sin(27°) = 8.17$ cm
- **Challenge:** Height $= 6 \times \sin(68°) = 5.56$ m

### Practice Perfect Questions Solutions

**Q1.** 6.88 cm

**Q2.** 8.10 cm

**Q3.** 9.37 cm

**Q4.** 14.4 m

**Q5.** 14.1 cm

**Q6.** 8.59 m