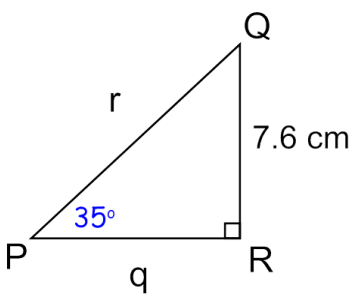
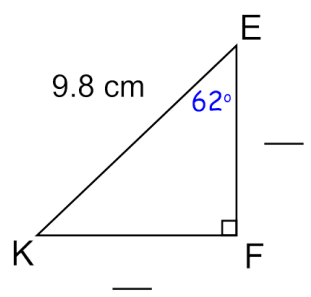


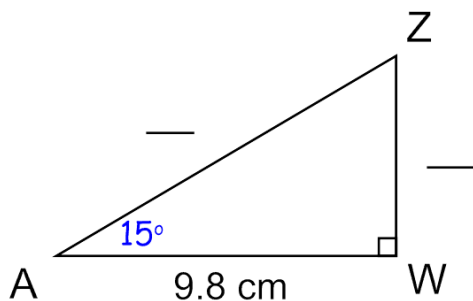
## Trigonometry – Solving for Sides in Right Triangles

sine	cosine	tangent
$\sin(\text{angle}) = \left(\frac{\text{opposite}}{\text{hypotenuse}}\right)$	$\cos(\text{angle}) = \left(\frac{\text{adjacent}}{\text{hypotenuse}}\right)$	$\tan(\text{angle}) = \left(\frac{\text{opposite}}{\text{adjacent}}\right)$

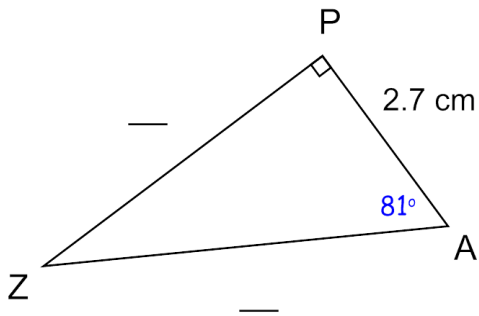
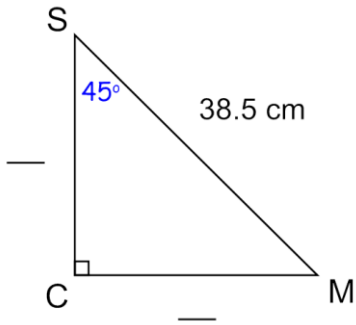
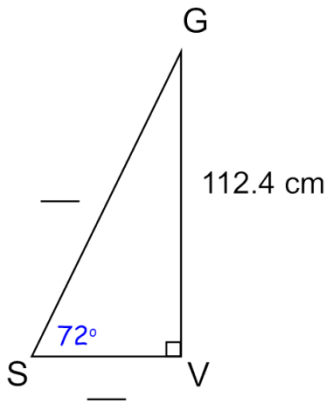
1. For each triangle below, determine the lengths of the missing sides and fill in the blanks.

<div style="text-align: center;">  </div> <p style="text-align: center;"><b>Reference Angle: P = 35°</b></p> <p style="text-align: center;">opposite: 7.6      adjacent: q      hypotenuse: r</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px; border-right: 1px solid black;"> <p style="text-align: center;"><b><u>Solve for side q.</u></b></p> <math display="block">\tan(35) = \frac{7.6}{q}</math> <math display="block">0.7002 = \frac{7.6}{q}</math> <math display="block">0.7002q = 7.6</math> <math display="block">\frac{0.7002q}{0.7002} = \frac{7.6}{0.7002}</math> <math display="block">q = 10.9 \text{ cm}</math> </td> <td style="width: 50%; padding: 5px;"> <p style="text-align: center;"><b><u>Solve for side r.</u></b></p> <math display="block">\sin(35) = \frac{7.6}{r}</math> <math display="block">0.5736 = \frac{7.6}{r}</math> <math display="block">0.5736r = 7.6</math> <math display="block">\frac{0.5736r}{0.5736} = \frac{7.6}{0.5736}</math> <math display="block">r = 13.2 \text{ cm}</math> </td> </tr> </table>	<p style="text-align: center;"><b><u>Solve for side q.</u></b></p> $\tan(35) = \frac{7.6}{q}$ $0.7002 = \frac{7.6}{q}$ $0.7002q = 7.6$ $\frac{0.7002q}{0.7002} = \frac{7.6}{0.7002}$ $q = 10.9 \text{ cm}$	<p style="text-align: center;"><b><u>Solve for side r.</u></b></p> $\sin(35) = \frac{7.6}{r}$ $0.5736 = \frac{7.6}{r}$ $0.5736r = 7.6$ $\frac{0.5736r}{0.5736} = \frac{7.6}{0.5736}$ $r = 13.2 \text{ cm}$	<div style="text-align: center;">  </div> <p style="text-align: center;"><b>Reference Angle: _____</b></p> <p style="text-align: center;">opposite: ____      adjacent: ____      hypotenuse: ____</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px; border-right: 1px solid black;"> <p style="text-align: center;"><b><u>Solve for side k.</u></b></p> <math display="block">\cos(62) = \frac{k}{9.8}</math> <math display="block">0.4695 = \frac{k}{9.8}</math> <math display="block">0.4695(9.8) = k</math> <math display="block">4.6011 = k</math> <math display="block">k = 4.6 \text{ cm}</math> </td> <td style="width: 50%; padding: 5px;"> <p style="text-align: center;"><b><u>Solve for side e.</u></b></p> </td> </tr> </table>	<p style="text-align: center;"><b><u>Solve for side k.</u></b></p> $\cos(62) = \frac{k}{9.8}$ $0.4695 = \frac{k}{9.8}$ $0.4695(9.8) = k$ $4.6011 = k$ $k = 4.6 \text{ cm}$	<p style="text-align: center;"><b><u>Solve for side e.</u></b></p>
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2. For the triangle given, determine the lengths of the missing sides. **Show your work!**



3. For the triangles given below, determine the lengths of the missing sides. **Show your work.**



4. In triangle PBJ, angle J = 90°, angle P = 22° and side j = 37 m.

Sketch a diagram of this triangle and determine the lengths of sides p and b.