

Basic Trigonometry, Law of Sines/Cosines

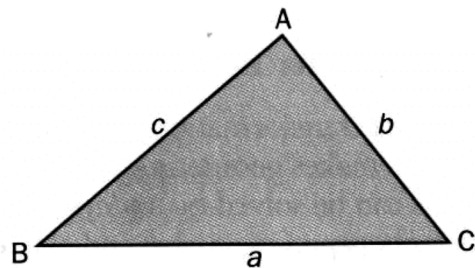
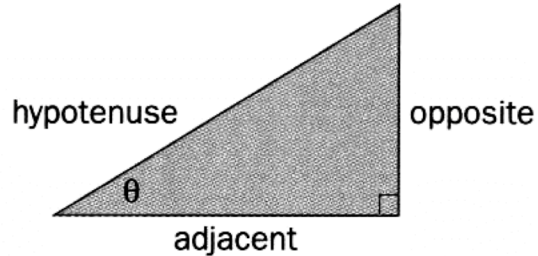
Trigonometry is used in Physics to solve a variety of problems from vector and vector components to Optics.

The three Primary Trigonometric Ratios (for Right Triangles) are

$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$$



The Law of Sines states

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c} \text{ or } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

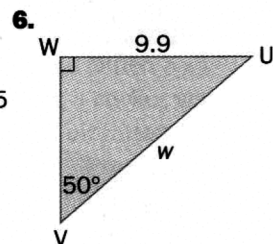
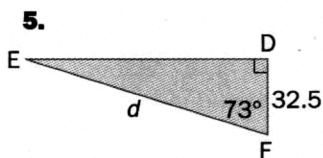
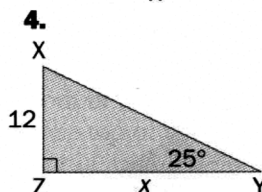
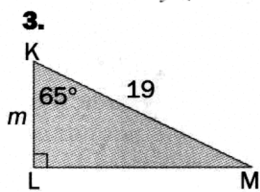
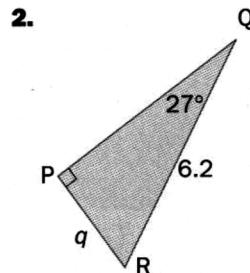
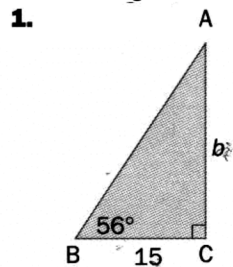
The Law of Cosines states that

$$a^2 = b^2 + c^2 - 2bc \cos A$$

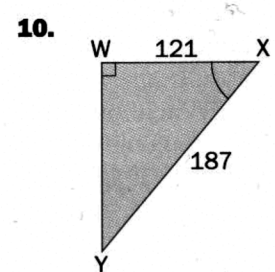
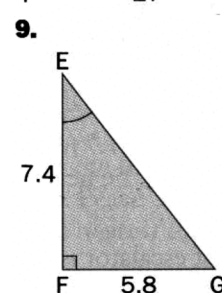
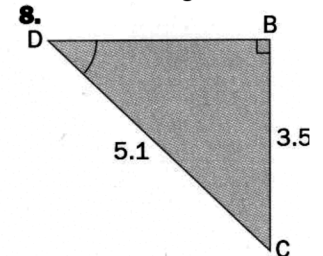
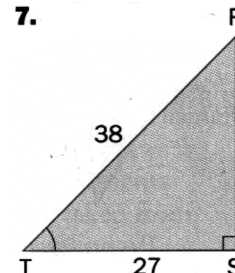
$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$

Find the length of the indicated side

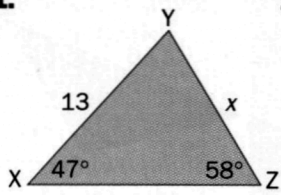


Find the measure of the indicated angle

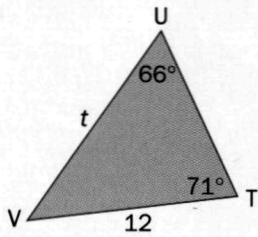


Find the length of the indicated side

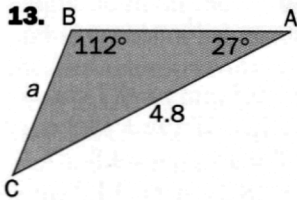
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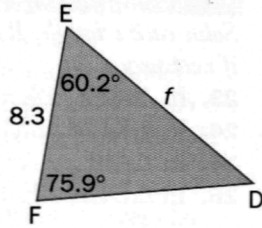
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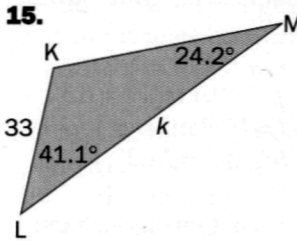
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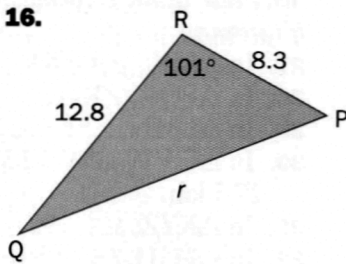
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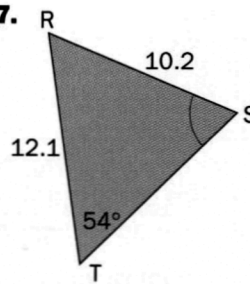


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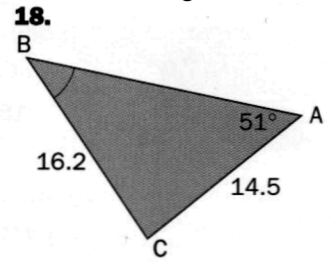


Find the measure of the indicated angle

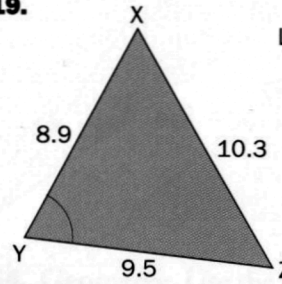
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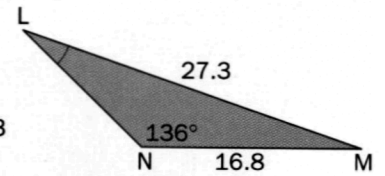
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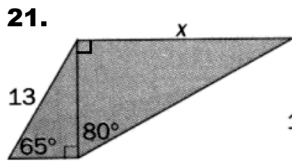


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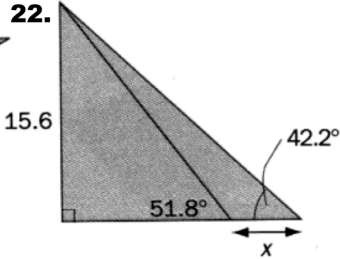


Find the length of the indicated side

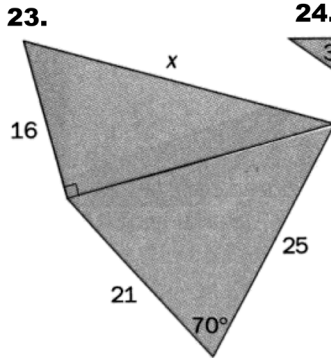
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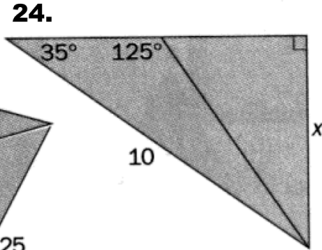
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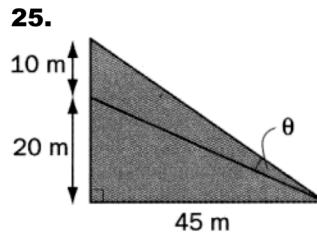


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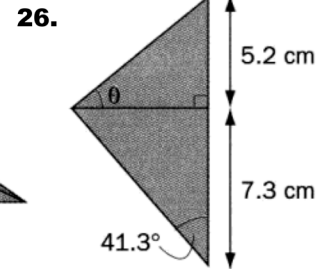


Find the measure of the indicated angle

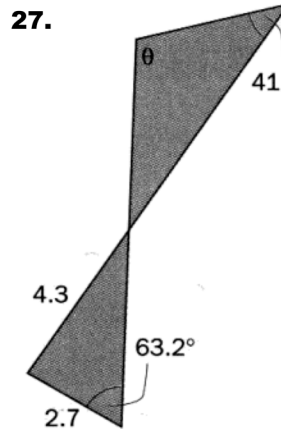
25.



26.



27.



28.

