Right Triangles and the Sine Ratio

MATHPOWER™ *Nine*, pp. 239–241

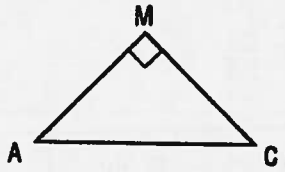
A second example of a **trigonometric ratio** is the **sine ratio**.

In a right triangle, the sine ratio of an acute angle is defined as

$$\frac{\text{side opposite the angle}}{\text{hypotenuse}}.$$

In $\triangle MAC$, the sine ratio of $\angle A$ is $\frac{MC}{AC}$.

In $\triangle MAC$, the sine ratio of $\angle C$ is $\frac{AM}{AC}$.



Use a calculator to find the sine of each angle, to three decimal places.

1. $62°$ _____
2. $21°$ _____
3. $85°$ _____
4. $45°$ _____
5. $5°$ _____
6. $70°$ _____

Find $\angle B$, to the nearest degree.

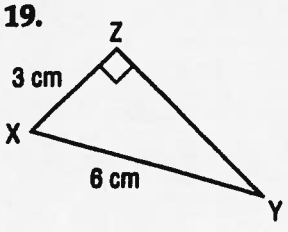
7. $\sin B = 0.990$ ___
8. $\sin B = 0.208$ ___
9. $\sin B = 0.500$ ___
10. $\sin B = 1.000$ ___
11. $\sin B = 0.345$ ___
12. $\sin B = 0.755$ ___

Find $\angle G$, to the nearest degree.

13. $\sin G = \frac{1}{2}$ ____
14. $\sin G = \frac{2}{5}$ ____
15. $\sin G = \frac{4}{5}$ ____
16. $\sin G = \frac{5}{8}$ ____
17. $\sin G = \frac{1}{11}$ ____
18. $\sin G = \frac{8}{9}$ ____

Calculate sin Y. Then, find $\angle Y$, to the nearest degree.

19.



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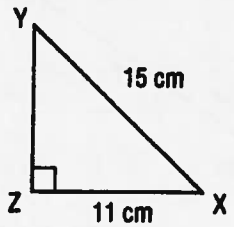

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Calculate y, to the nearest hundredth of a metre.

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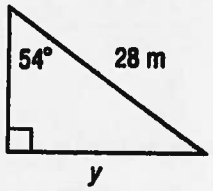

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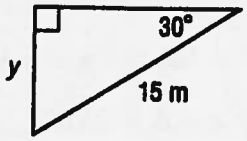

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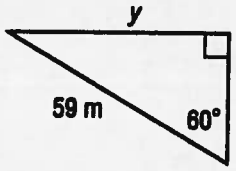

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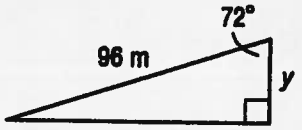

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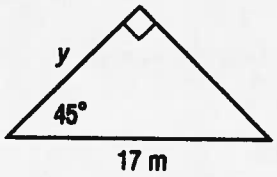

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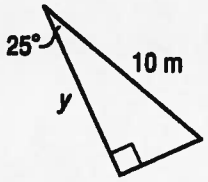

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27. $\triangle KLM$ is an equilateral triangle. The length of each side of the triangle is 15 cm. Find the height of the triangle, to the nearest tenth of a centimetre.

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