

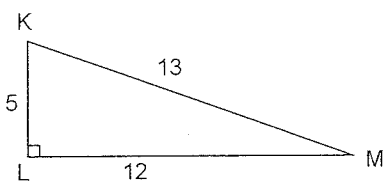
Using Trigonometric Ratios to Find Angles Assignment

Round all answers to the nearest tenth of a degree unless otherwise specified.

1. Find the angle that would give each ratio.

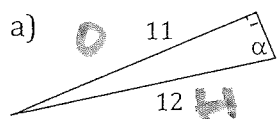
- |   |  |   |
|---|--|---|
| a) $\sin \underline{26.0^\circ} = 0.4384$                             | b) $\cos \underline{86.0^\circ} = 0.0698$                            | c) $\cos \underline{68.0^\circ} = 0.3746$                             |
| d) $\tan \underline{81.0^\circ} = 6.3138$                             | e) $\tan \underline{8.0^\circ} = 0.1405$                             | f) $\sin \underline{56.0^\circ} = 0.8290$                             |
| g) $\cos A = 0.6157$<br>$\angle A = \underline{52.0^\circ}$           | h) $\sin P = 0.9563$<br>$\angle P = \underline{73.0}$                | i) $\tan B = 1.6003$<br>$\angle B = \underline{58.0^\circ}$           |
| j) $\sin \theta = 0.2432$<br>$\angle \theta = \underline{14.1^\circ}$ | k) $\cos D = 0.4115$<br>$\angle A = \underline{65.7^\circ}$          | l) $\tan \alpha = 0.4773$<br>$\angle \alpha = \underline{25.5^\circ}$ |
| m) $\cos A = 0.9126$<br>$\angle A = \underline{24.1^\circ}$           | n) $\sin \theta = 0.1392$<br>$\angle \theta = \underline{8.0^\circ}$ | o) $\tan \beta = 6.3138$<br>$\angle \beta = \underline{81.0^\circ}$   |

2. Find each required ratio in fraction form.



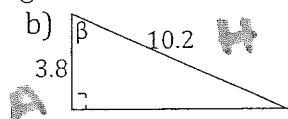
- |                             |                            |                            |
|-----------------------------|----------------------------|----------------------------|
| a) $\cos M = \frac{12}{13}$ | b) $\tan M = \frac{5}{12}$ | c) $\sin M = \frac{5}{13}$ |
| d) $\sin K = \frac{12}{13}$ | e) $\cos K = \frac{5}{13}$ | f) $\tan K = \frac{12}{5}$ |

3. Find each indicated angle. Show all work.



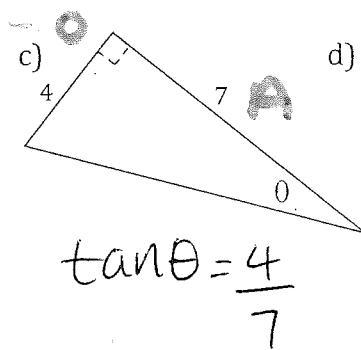
$$\sin \alpha = \frac{11}{12}$$

a)  $\underline{66.4^\circ}$



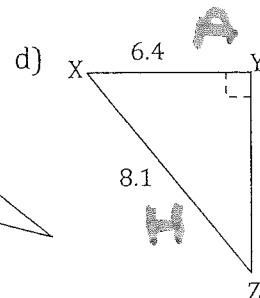
$$\cos \beta = \frac{3.8}{10.2}$$

b)  $\underline{68.1^\circ}$



$$\tan \theta = \frac{4}{7}$$

c)  $\underline{29.7^\circ}$

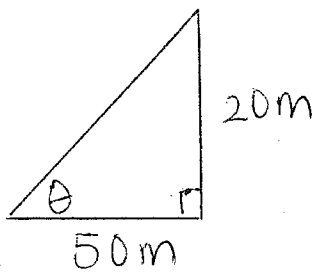


$$\cos X = \frac{6.4}{8.1}$$

d)  $\angle X = \underline{37.8^\circ}$

For #4 - 8 Draw a diagram and show all work.

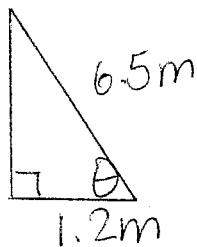
4. A birdwatcher sights an eagle at the top of a 20m tree. The birdwatcher is lying on the ground 50m from the tree. At what angle must he incline his camera to take a photograph of the eagle?



$$\tan \theta = \frac{20}{50}$$

4. 21.8°

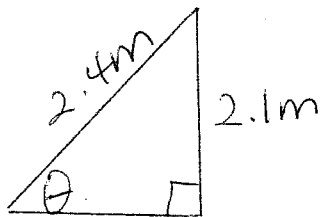
5. A ladder is 6.5m long. It leans against a wall. The base of the ladder is 1.2m from the wall. What is the angle of elevation of the ladder?



$$\cos \theta = \frac{1.2}{6.5}$$

5. 79.4°

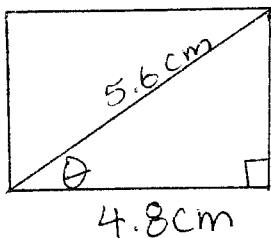
6. A rope that supports a tent is 2.4m long. The rope is attached to the tent at a point 2.1m above the ground. What is the angle of inclination of the rope?



$$\sin \theta = \frac{2.1}{2.4}$$

6. 61.0°

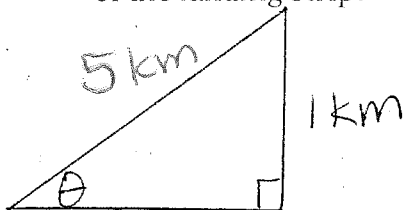
7. A rectangle is 4.8cm long and each diagonal is 5.6cm long. What is the measure of the angle between a diagonal and the longest side of the rectangle?



$$\cos \theta = \frac{4.8}{5.6}$$

7. 31.0°

8. A small plane is flying at an altitude of 1km and is 5km from the beginning of the landing strip. What is the angle between the ground and the line of sight from an observer at the beginning of the landing strip?



$$\sin \theta = \frac{1}{5}$$

8. 11.5°