

Math 06, Homework 8 on Trigonometric Ratios and Applying Right Triangles
due Tue, April 9 at the start of class.

These first ten questions from the Trigonometry Supplement are 2 points each. Write your work on a separate sheet. Show clearly all your working out and reasoning and check your answers match the ones in the book at the end of each section.

1. **Q17, p. 58.** Let $\triangle UVW$ have $\angle V = 90^\circ$ and lengths $UV = 9$, $VW = 40$ and $UW = 41$. Compute: $\sin U$.
 2. **Q23, p. 58.** Given $\triangle ABC$ with $\angle C = 90^\circ$ and $\sin A = 3/5$. Compute: $\cos A$.
 3. **Q35, p. 59.** Give the **exact** value for: $\sin 60^\circ$
 4. **Q43, p. 59.** With a calculator, find correct to 4 decimal places: $\tan 5^\circ$
 5. **Q55, p. 59.** Without a calculator, find the acute angle A if $\cos A = 1/2$.
 6. **Q9, p. 82.** Given $\triangle ABC$ with $\angle C = 90^\circ$, $\angle A = 25^\circ$, hypotenuse $c = 16.85$. Compute: a , the side opposite A .
 7. **Q17, p. 82.** Given $\triangle ABC$ with $\angle C = 90^\circ$, hypotenuse $c = 15.69$, side $a = 8.08$ (side a is opposite $\angle A$). Compute: $\angle A$
 8. **Q27, p. 83.** Given $\triangle ABC$ with $\angle C = 90^\circ$, $\angle A = 47.2^\circ$, $b = 82.4$. Solve $\triangle ABC$ (in other words find all it's remaining sides and angles).
 9. **Q35, p. 84.** The angle of elevation of the top of a fir tree is 63° from an observation point 50 feet from the base of the tree. Find the height of the tree.
 10. **Q39, p. 84.** A 30-foot pole casts a shadow which is 8 feet long. Find the angle of elevation of the sun.
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These next ten questions are 2 points each. It is very important that you show clearly any work you had to do to get the answer and explain your reasoning.

11. Let $\triangle UVW$ have $\angle V = 90^\circ$ and lengths $UV = 9$, $VW = 40$ and $UW = 41$. Compute: $\cos W$.
12. Given $\triangle ABC$ with $\angle C = 90^\circ$ and $\cos A = 2/7$. Compute: $\sin A$.
13. Give the **exact** value for: $\cos 45^\circ$
14. With a calculator, find correct to 4 decimal places: $\cos 24^\circ$

15. Without a calculator, find the acute angle A if $\tan A = 1$.
16. Give the **exact** value for: $\cos 30^\circ$
17. With a calculator, find: $\sin 90^\circ$, $\cos 90^\circ$, $\tan 90^\circ$. Can you explain the calculator's answers?
18. Given $\triangle ABC$ with $\angle C = 90^\circ$, $\angle A = 5^\circ$, $b = 10$. Solve $\triangle ABC$ (in other words find all it's remaining sides and angles) and sketch the triangle.
19. A 100-foot tower casts a 7-foot shadow. What is the angle of elevation of the sun?
20. The observation window of a lighthouse is 160 feet above sea level. From there the angle of depression of a yacht is 10° . Find the distance from the lighthouse to the yacht in the correct units.