

MATH 1500: Chapter 10 & 12 Test

9 pts. Use your calculator to find the measure of each to the nearest tenth of a degree.

1. $\sin A = 0.561$

2. $\cos B = 0.587$

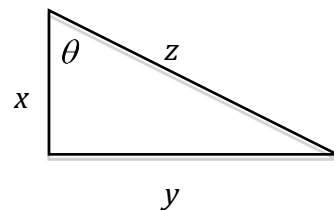
3. $\tan C = 2.785$

12 pts. Use the triangle at the right to answer questions 4-6.

4. $\sin \theta =$

5. $\cos \theta =$

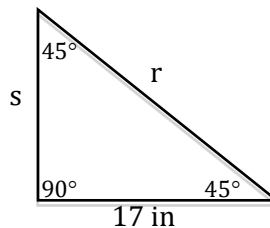
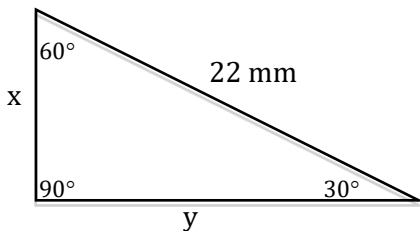
6. $\tan \theta =$



18 pts. Use the properties of the special right triangles to find the missing values.

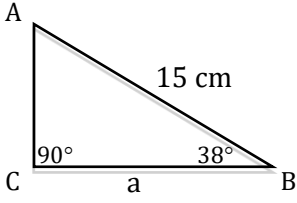
7. Find x and y.

8. Find r and s.

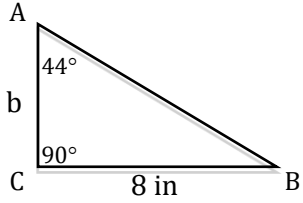


30 pts. Use trigonometric ratios to find the indicated values. Show your work.

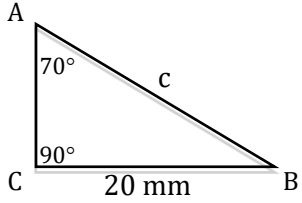
9. Find a



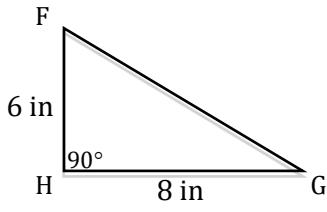
10. Find b



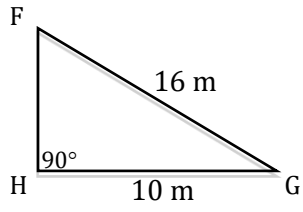
11. Find c



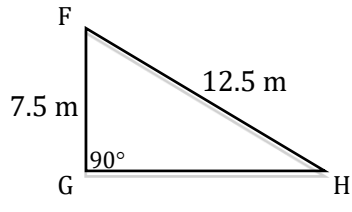
12. Find $m\angle F$



13. Find $m\angle G$



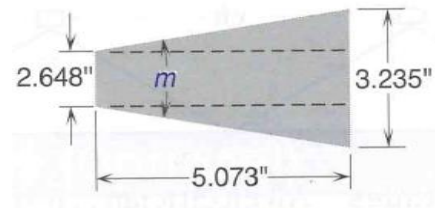
14. Find $m\angle H$



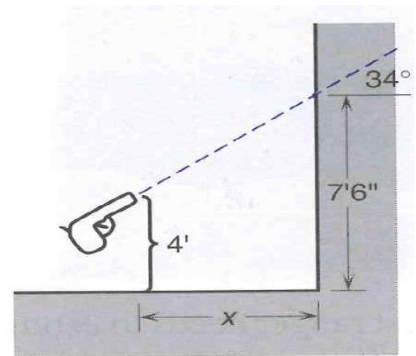
30 pts. **Applications.** Choose any five of the following to complete.

*****6 pts. **Bonus:** Choose one more problem, please mark which one is to be the bonus.*****

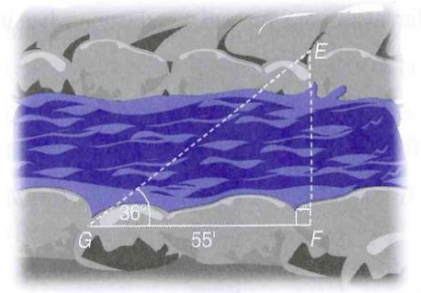
17. Find the included angle m of the taper shown. (Round to the nearest tenth of a degree.)



18. Detectives investigating a crime find a bullet hole in a wall at a height of 7 feet 6 inches from the floor. The bullet passed through the wall at an angle of 34° . They assume that the gun was fired from a height of 4 feet above the floor, how far away from the wall was the gun when it was fired? Round to the nearest tenth of a degree.

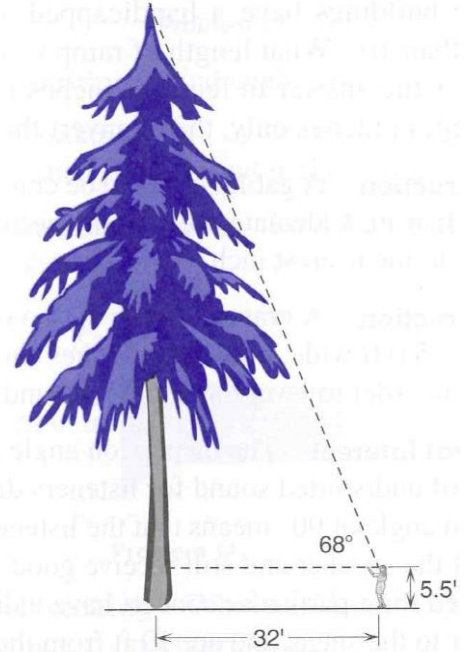


19. A surveyor wants to estimate the width EF of the ravine shown in the figure without crossing over to the other side. He walks 55 ft perpendicular to EF to point G and sights point E . He then measures angle EGF to be 36° . Calculate the width of the ravine, EF .

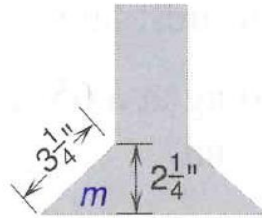


20. The most efficient operating angle for a certain conveyor belt is 31° . If the parts must be moved a vertical distance of 16 feet, what length of conveyor is needed?

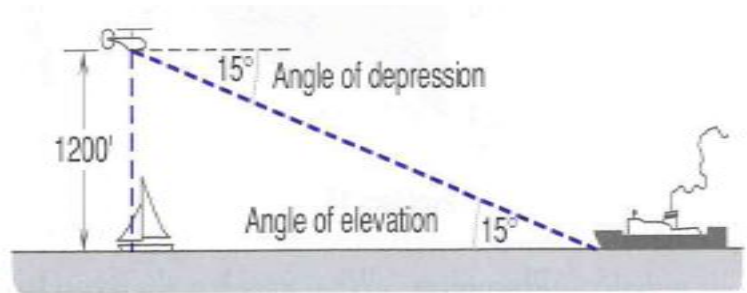
21. A forest ranger needs to estimate the height of the tree shown in the figure. She sights the top of the tree through a clinometer, a device that gives her angle of elevation as 68° . If she is standing 32 feet from the tree, and it is 5.5 feet from the ground to her eye level, how tall is the tree?



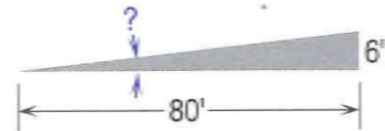
22. Find the angle m in the casting shown. Round to the nearest tenth degree.



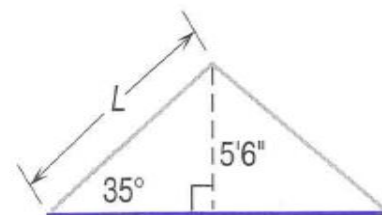
23. A helicopter, flying directly over a fishing boat at an altitude of 1200 feet, has a 15° angle of depression. How far from the boat is the liner?



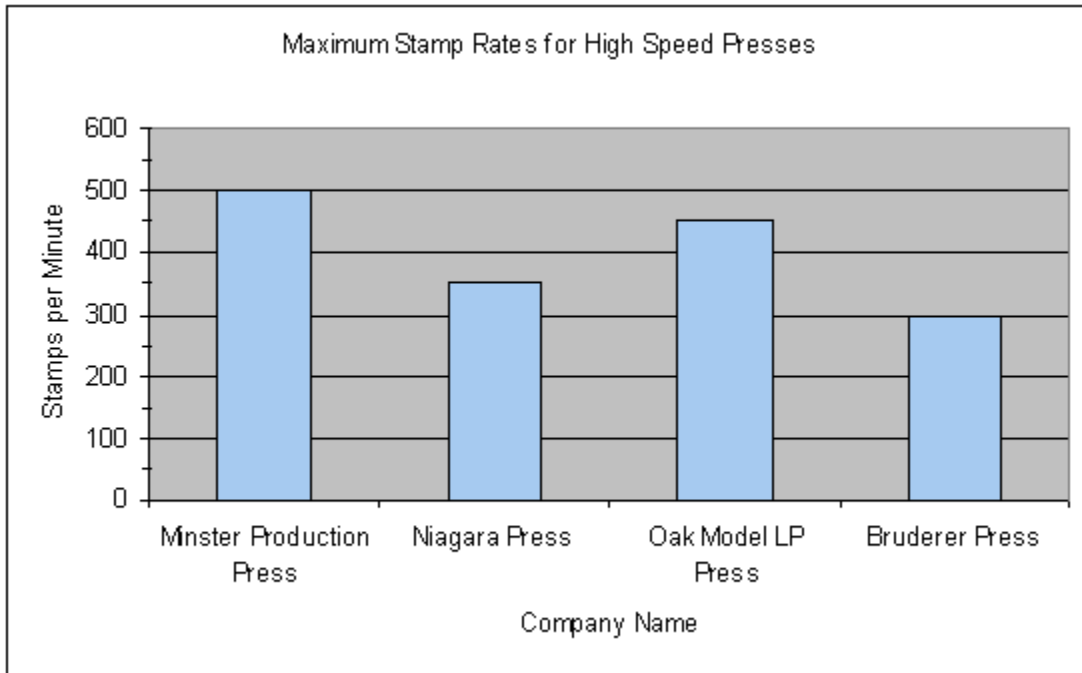
24. A road has a rise of 6 feet over 80 feet. What is the gradient of the road? Round to the nearest tenth of a degree.



25. Find the length of the rafter shown. Round to the nearest inch.



The following bar graph reflects information about high speed presses. Use the graph to answer questions 26-28.



- 26. Which press had the highest stamps per minute and which press had the lowest?

- 27. Which press was rated at 450 stamps per minute and which press was rated at 300 spm?

- 28. Which press was rated at 350 stamps per minute and which press was rated at 500 spm?

29. Find the median for the following numbers. (5, 3, 1, 9, 5, 3, 6, 3, 3, 7)

30. Find the mode for the following numbers. (5, 3, 1, 9, 5, 3, 6, 3, 3, 7)

31. Find the mean for the following numbers. (12.507, 12.556, 12.701, 12.617, 12.844)

32. Find the range for the following numbers. (87, 94, 82, 87, 80, 76, 82)

