

State the range and Domain for each problem:

1. $y = \sin(x)$

Domain: _____

Range: _____

2. $y = \cos(x)$

Domain: _____

Range: _____

3. $y = \tan(x)$

Domain: _____

Range: _____

4. $y = \csc(x)$

Domain: _____

Range: _____

5. $y = \sec(x)$

Domain: _____

Range: _____

6. $y = \cot(x)$

Domain: _____

Range: _____

7. $y = \arcsin(x)$

Domain: _____

Range: _____

8. $y = \arccos(x)$

Domain: _____

Range: _____

9. $y = \arctan(x)$

Domain: _____

Range: _____

10. $y = \operatorname{arccsc}(x)$

Domain: _____

Range: _____

11. $y = \operatorname{arcsec}(x)$

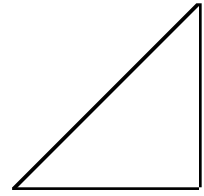
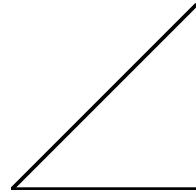
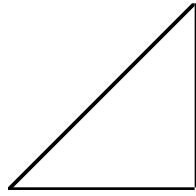
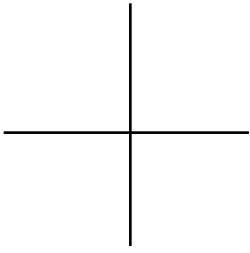
Domain: _____

Range: _____

12. $y = \operatorname{arccot}(x)$

Domain: _____

Range: _____



Find the **exact value** :

13. $\arcsin\left(\frac{-1}{2}\right)$

14. $\cos^{-1}\left(\frac{-1}{2}\right)$

15. $\operatorname{arcsec}(-\sqrt{2})$

16. $\tan^{-1}(1)$

17. $\operatorname{arccot}(\sqrt{3})$

18. $\operatorname{arccsc}(2)$

19. $\arcsin\left(\frac{\sqrt{3}}{2}\right)$

20. $\arccos\left(\frac{\sqrt{2}}{2}\right)$

21. $\sec^{-1}(-2)$

22. $\arctan\left(\frac{-\sqrt{3}}{3}\right)$

23. $\operatorname{arccot}(-\sqrt{3})$

24. $\csc^{-1}\left(\frac{-2\sqrt{3}}{3}\right)$

25. $\sin^{-1}(0)$

26. $\arccos\left(\frac{-\sqrt{3}}{2}\right)$

27. $\operatorname{arcsec}(1)$

28. $\arctan(-1)$

29. $\cot^{-1}(0)$

30. $\operatorname{arccsc}(-\sqrt{2})$

31. $\arcsin\left(\cos\frac{4\pi}{3}\right)$

32. $\sin^{-1}\left(\tan\frac{3\pi}{4}\right)$

33. $\operatorname{arccot}\left(\tan\frac{-7\pi}{6}\right)$

34. $\tan^{-1}\left(\tan\frac{2\pi}{3}\right)$

35. $\arcsin\left(\cos\frac{-\pi}{3}\right)$

36. $\arcsin\left(\sin\frac{4\pi}{3}\right)$

37. $\arccos\left(\cos\frac{5\pi}{6}\right)$

38. $\arctan\left(\cot\frac{-\pi}{6}\right)$

39. $\cot^{-1}\left(\tan\frac{5\pi}{6}\right)$

40. $\tan\left(\arccos\frac{-3}{5}\right)$

41. $\cos\left(\arctan\frac{-5}{12}\right)$

42. $\cos\left(\arcsin\frac{-4}{5}\right)$

43. $\tan\left(\operatorname{arcsec}\frac{5}{3}\right)$

44. $\sec\left(\arctan\frac{3}{4}\right)$

45. $\csc\left(\operatorname{arccot}\frac{4}{5}\right)$

46. $\sin\left(\arccos\frac{1}{4}\right)$

**47. $\sin\left(2\arctan\frac{12}{5}\right)$

**48. $\cos\left(2\arcsin\frac{1}{4}\right)$

Write each expression as an algebraic expression in terms of x ($x > 0$):

37. $\sin(\arccos x)$

38. $\tan(\arccos x)$

39. $\cos(\arcsin x)$

40. $\cot(\arcsin x)$

41. $\sin\left(\operatorname{arcsec} \frac{x}{5}\right)$

42. $\cos\left(\arctan \frac{x}{2}\right)$