

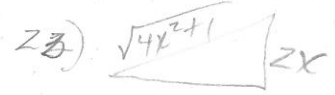
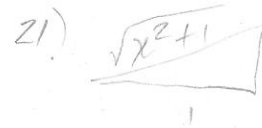
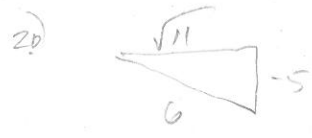
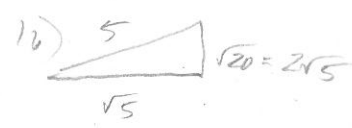
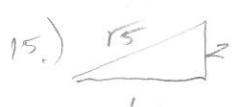
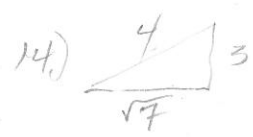
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KEY

**Arc Trig Worksheet**

**Evaluate**

1.  $\arccos \frac{1}{2}$   $\frac{\pi}{3}$
2.  $\arcsin 1$   $\frac{\pi}{2}$
3.  $\arcsin 0$   $0$
4.  $\arccos 0$   $\frac{\pi}{2}$
5.  $\arctan(-\sqrt{3})$   $-\frac{\pi}{3}$
6.  $\arcsin(-1/2)$   $-\frac{\pi}{6}$
7.  $\operatorname{arcsec} 2$   $\frac{\pi}{3}$
8.  $\operatorname{arccot}(\sqrt{3})$   $\frac{\pi}{6}$
9.  $\arctan(\frac{\sqrt{3}}{3})$   $\frac{\pi}{6}$
10.  $\arctan 1$   $\frac{\pi}{4}$
11.  $\arcsin(-\frac{\sqrt{2}}{2})$   $-\frac{\pi}{4}$
12.  $\arccos(-\frac{\sqrt{3}}{2})$   $\frac{5\pi}{6}$



**Find the exact value of the given expression without using a calculator. (Hint: Make a sketch of a right triangle)**

13.  $\sin(\arctan \frac{3}{4}) = \frac{3}{5}$
14.  $\sec(\arcsin \frac{4}{5}) = \sec(\sin^{-1}(\frac{4}{5})) = \frac{5}{3}$
15.  $\cos(\arctan 2) = \frac{1}{\sqrt{5}} = \frac{\sqrt{5}}{5}$
16.  $\sin(\arcsin \frac{\sqrt{5}}{5}) = \frac{\sqrt{5}}{5}$
17.  $\cos(\arcsin \frac{5}{13}) = \frac{12}{13}$
18.  $\csc[\arctan(-5/12)] = -\frac{13}{5}$
19.  $\sec[\arctan(-3/5)] = \frac{5}{\sqrt{34}}$
20.  $\tan[\arcsin(-5/6)] = -\frac{5}{\sqrt{11}} = -\frac{5\sqrt{11}}{11}$

**Write an algebraic expression that is equivalent to the given expression. (Hint: Sketch a right triangle.)**

21.  $\cot(\arctan x) = \frac{1}{x}$
23.  $\cos(\arcsin 2x) = \frac{1}{\sqrt{4x^2+1}}$
25.  $\sin(\arccos x) = \sqrt{1-x^2}$
27.  $\tan(\arcsin \frac{x}{3}) = \frac{\sqrt{9-x^2}}{x}$
29.  $\csc(\arctan \frac{x}{\sqrt{2}}) = \frac{\sqrt{2x^2+2}}{x}$

22.  $\sin(\arctan x) = \frac{x}{\sqrt{1+x^2}}$
24.  $\sec(\arctan 3x) = \sqrt{9x^2+1}$
26.  $\cot(\arctan \frac{1}{x}) = x$
28.  $\sec[\arcsin(x-1)] = \frac{1}{\sqrt{(x-1)^2+1}}$
- 24)
- 25)
- 26)
- 27)
- 28)

