

# Functions

1. a. cosine b. tangent c. secant d. sine e. cotangent f. cosecant  
a. sine b. tangent c. cosecant d. cosine e. secant f. cotangent
2. a.  $\sin:4/5,$        $\cos:3/5,$        $\tan:4/3,$        $\csc:5/4,$        $\sec:5/3,$        $\cot:3/4$   
b.  $\sin:-4/5,$        $\cos:3/5,$        $\tan:-4/3,$        $\csc:-5/4,$        $\sec:5/3,$        $\cot:-3/4$   
c.  $\sin:-4/5,$        $\cos:-3/5,$        $\tan:4/3,$        $\csc:-5/4,$        $\sec:-5/3,$        $\cot:3/4$   
d.  $\sin:4/5,$        $\cos:-3/5,$        $\tan:-4/3,$        $\csc:5/4,$        $\sec:-5/3,$        $\cot:-3/4$
3. a. 1,4 b. 2,4 c. 1,2 d. 1,3 e. 1,4 f. 3,4 g. 4 h. 2 i. 3 j. 1 k. 2 l. none
4. a.  $53^\circ$  b.  $\pi/6$  c.  $45^\circ$  d.  $\pi/3$  e. none f. 1.18 g.  $22.75^\circ$  h.  $58.1^\circ$   
i. 0.44 j.  $121.9^\circ$
5. a. cosine b. sine c. cotangent d. cosecant e. cotangent f. secant  
g. secant h. sine i. tangent j. cosine
6. a.  $\sin:\sqrt{2}/2,$   $\cos:\sqrt{2}/2,$   $\tan:1,$   $\csc:2/\sqrt{2},$   $\sec:2/\sqrt{2},$   $\cot:1$   
b. cos, sec, tan, cot are negative.  
c. sin, csc, cos, sec are negative.  
d. sin, csc, tan, cot are negative.
7.  $60^\circ:$   $\sin:\sqrt{3}/2,$   $\cos:1/2,$   $\tan:\sqrt{3},$   $\csc:2/\sqrt{3},$   $\sec:2,$   $\cot:1/\sqrt{3}$   
 $30^\circ:$   $\sin:1/2,$   $\cos:\sqrt{3}/2,$   $\tan:1/\sqrt{3},$   $\csc:2,$   $\sec:2/\sqrt{3},$   $\cot:\sqrt{3}$
8. a.  $150^\circ, 5/6 \pi;$   $210^\circ, 7/6 \pi;$   $330^\circ, 11/6 \pi$   
b. The signs would change depending on which quadrant the angle is placed.
9. a.  $120^\circ, 2/3 \pi;$   $240^\circ, 4/3 \pi;$   $300^\circ, 5/3 \pi$   
b. The signs would change depending on which quadrant the angle is placed.
10. a.  $\sin:0,$   $\cos:1,$   $\tan:0,$   $\csc:$  not defined,  $\sec:1,$   $\cot:$  not defined  
b.  $\sin:1,$   $\cos:0,$   $\tan:$  not defined,  $\csc:1,$   $\sec:$  not defined,  $\cot:0$   
c.  $\sin:0,$   $\cos:-1,$   $\tan:0,$   $\csc:$  not defined,  $\sec:-1,$   $\cot:$  not defined  
d.  $\sin:-1,$   $\cos:0,$   $\tan:$  not defined,  $\csc:-1,$   $\sec:$  not defined,  $\cot:0$
12. 20.59 meters