13 – 4 Worksheet Name _____ Assignment # _____

Evaluate the expression WITHOUT using a calculator. Give your answer in both radians and degrees.

1. $\cos^{-1}(-1)$

2. $\sin^{-1}\frac{1}{2}$

3. $\tan^{-1}\frac{\sqrt{3}}{3}$

4. $\cos^{-1}\frac{\sqrt{3}}{2}$

5. $\tan^{-1}0$

6. $\sin^{-1}\left(\frac{\sqrt{2}}{2}\right)$

7. $\cos^{-1}\frac{1}{2}$

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

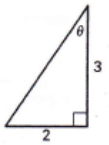
9. $\cos^{-1}\left(-\frac{1}{2}\right)$

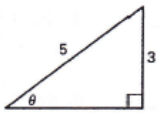
10. $\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$

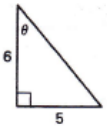
11. $\tan^{-1}\left(-\frac{\sqrt{3}}{3}\right)$

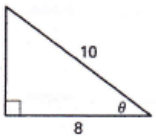
12. $\tan^{-1}\sqrt{3}$

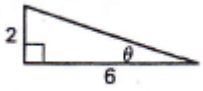
Find the measure of the angle θ. Round to three significant digits.

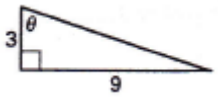
13. 

14. 

15. 

16. 

17. 

18. 

Use a calculator to evaluate the expression in both radians and degrees. Round to three significant digits.

19. $\sin^{-1}0.6$

20. $\cos^{-1}(-0.75)$

21. $\tan^{-1}4.5$

22. $\cos^{-1}(-0.25)$

23. $\cos^{-1}0.1$

24. $\tan^{-1}(-2.5)$

25. $\sin^{-1}0.9$

26. $\sin^{-1}(-0.4)$

Solve the equation for θ. Round to three significant digits.

27. $\sin\theta = 0.25; 90^\circ < \theta < 180^\circ$

28. $\cos\theta = -0.83; 180^\circ < \theta < 270^\circ$

29. $\tan\theta = 2.5; 0^\circ < \theta < 90^\circ$

30. $\sin\theta = -0.64; 270^\circ < \theta < 360^\circ$

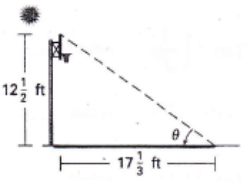
31. $\tan\theta = 5.3; 180^\circ < \theta < 270^\circ$

32. $\sin\theta = -0.89; 270^\circ < \theta < 360^\circ$

33. $\cos\theta = -0.6; 90^\circ < \theta < 180^\circ$

34. $\tan\theta = 1.53; 0^\circ < \theta < 90^\circ$

35. The height of an outdoor basketball backboard is 12.5 feet and the backboard casts a shadow $17\frac{1}{3}$ ft long, as shown on the diagram. Find the angle of elevation of the sun. Give your answer in both radians and degrees.



Find answers in both radians and degrees. NO CALCULATORS

1. $\cos^{-1}\left(-\frac{1}{2}\right)$ _____ (radians) _____ (degrees)

2. $\sin^{-1}\left(-\frac{1}{2}\right)$ _____ (radians) _____ (degrees)

3. $\cos^{-1}\frac{\sqrt{3}}{2}$ _____ _____

4. $\sin^{-1}\frac{\sqrt{2}}{2}$ _____ _____

5. $\cos^{-1}(-1)$ _____ _____

6. $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ _____ _____

7. $\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)$ _____ _____

8. $\cos^{-1}\frac{1}{2}$ _____ _____

9. $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$ _____ _____

10. $\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$ _____ _____

11. $\tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$ _____ _____

12. $\tan^{-1}(1)$ _____ _____

13. $\tan^{-1}\left(\sqrt{3}\right)$ _____ _____

14. $\tan^{-1}\left(-\sqrt{3}\right)$ _____ _____

15. $\tan^{-1}(-1)$ _____ _____

16. $\tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$ _____ _____

17. $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$ _____ _____

18. $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ _____ _____

19. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ _____ _____

20. $\tan^{-1}(0)$ _____ _____

21. $\sin^{-1}(-1)$ _____ _____

22. $\sin^{-1}(1)$ _____ _____

Answers:

1. $\pi;180^o$
2. $\frac{\pi}{6};30^o$
3. $\frac{\pi}{6};30^o$
4. $\frac{\pi}{6};30^o$
5. $0,0^o$
6. $\frac{\pi}{4};45^o$
7. $\frac{\pi}{3};60^o$
8. $-\frac{\pi}{4};-45^o$
9. $\frac{2\pi}{3};120^o$
10. $-\frac{\pi}{4};-45^o$
11. $\frac{-\pi}{6};-30^o$
12. $\frac{\pi}{3};60^o$
13. 33.7^o
14. 36.9^o
15. 39.8^o
16. 36.9^o
17. 18.4^o
18. 71.6^o
19. $0.644;\ 36.9^o$
20. $2.42;\ 139^o$
21. $1.35;\ 77.5^o$
22. $1.82;\ 104^o$
23. $1.47;\ 84.3^o$
24. $-1.19;\ -68.2^o$
25. $1.12;\ 64.2^o$
26. $-0.412;\ -23.6^o$
27. 166^o
28. 214^o
29. 68.2^o
30. 320.2^o
31. 259^o
32. 297^o
33. 127^o
34. 56.8^o
35. $35.797^o;\ 0.625$

1. $\frac{2\pi}{3};120^o$
2. $\frac{-\pi}{6};-30^o$
3. $\frac{\pi}{6};30^o$
4. $\frac{\pi}{4};45^o$
5. $\pi;180^o$
6. $\frac{-\pi}{3};-60^o$
7. $\frac{3\pi}{4};135^o$
8. $\frac{\pi}{3};60^o$
9. $\frac{\pi}{3};60^o$
10. $-\frac{\pi}{4};-45^o$
11. $\frac{\pi}{6};30^o$
12. $\frac{\pi}{4};45^o$
13. $\frac{\pi}{3};60^\circ$
14. $\frac{-\pi}{3};-60^o$
15. $-\frac{\pi}{4};-45^o$
16. $-\frac{\pi}{6};-30^\circ$
17. $\frac{\pi}{3};60^o$
18. $\frac{-\pi}{3};-60^o$
19. $\frac{5\pi}{6};150^o$
20. $0,0^o$
21. $\frac{-\pi}{2};-90^\circ$
22. $\frac{\pi}{2};90^\circ$