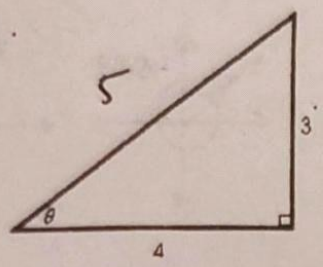
Unit 4: Introduction to Trigonometry

I. Find the exact values of the six trigonometric Functions of θ. No decimals! Write your answer in simplest form. Be sure to find the missing side! Show work.

1.

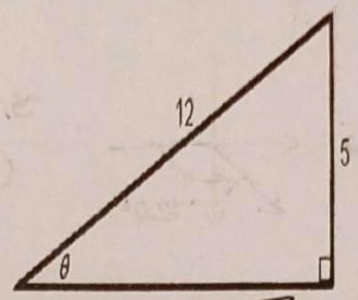


Missing side: $\sqrt{c^2} = \sqrt{3^2+4^2}$

$c=5$

sin θ = 3/5	csc θ = 5/3	sin θ = 5/12	csc θ = 12/5
cos θ = 4/5	sec θ = 5/4	cos θ = $\sqrt{119}/12$	sec θ = $12/\sqrt{119} = \frac{12\sqrt{119}}{119}$
tan θ = 3/4	cot θ = 4/3	tan θ = $5/\sqrt{119} = \frac{5\sqrt{119}}{119}$	cot θ = $\frac{\sqrt{119}}{5}$

2.

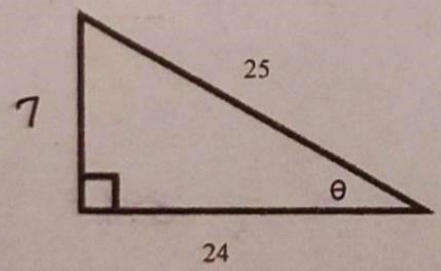


Missing side: $\sqrt{119}$

$\sqrt{12^2-5^2} = \sqrt{a^2}$

$a = \sqrt{119}$

3.



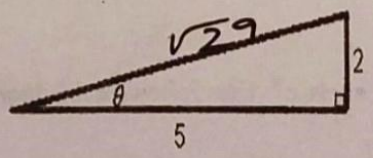
Missing side:

$\sqrt{25^2-24^2} = \sqrt{b^2}$

$b=7$

sin θ = 7/25	csc θ = 25/7	sin θ = $2/\sqrt{29} = \frac{2\sqrt{29}}{29}$	csc θ = $\frac{\sqrt{29}}{2}$
cos θ = 24/25	sec θ = 25/24	cos θ = $5/\sqrt{29} = \frac{5\sqrt{29}}{29}$	sec θ = $\frac{\sqrt{29}}{5}$
tan θ = 7/24	cot θ = 24/7	tan θ = $\frac{2}{5}$	cot θ = $\frac{5}{2}$

4.



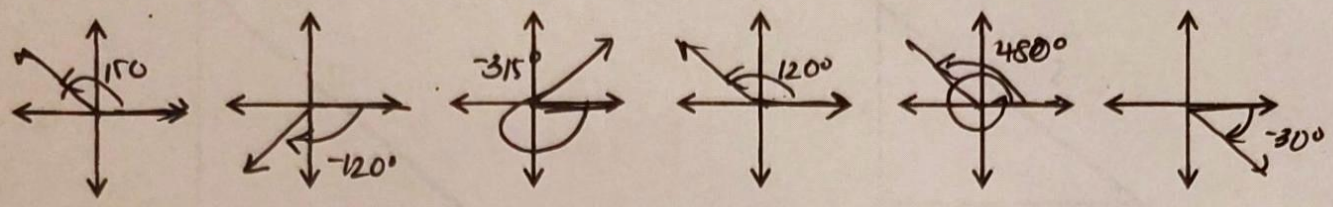
Missing side:

$\sqrt{2^2+5^2} = \sqrt{c^2}$

$\sqrt{29} = c$

II. Sketch each of the following angles in standard position.

5. 150° 6. -120° 7. $-\frac{7\pi}{4}$ -315 8. $\frac{2\pi}{3}$ $=120^\circ$ 9. 480° 10. -30°



III. Determine the quadrant in which the terminal side of the angle lies.

11. 130° 2 12. -336° 1 13. 285° 4 14. -260° 2

15. $\frac{22\pi}{3}$ 3 16. $\frac{7\pi}{5}$ 252 3 17. $-\frac{17\pi}{3}$ 1 18. $-\frac{\pi}{12}$ 4 4

19. 415° 1 20. 1020° 4 21. 718° 4 22. -63° ____

IV. Express each of the following in radian measure. Leave your answer in terms of π.

23. 150° $5\pi/6$ 24. 315° $7\pi/4$ 25. -240° $-4\pi/3$

26. 115° $23\pi/36$ 27. 345° $23\pi/12$ 28. -216° $-6\pi/5$

V. Express each of the following in degree measure.

29. $\frac{5\pi}{9}$ 100° 30. $-\frac{7\pi}{12}$ -105° 31. $\frac{11\pi}{5}$ 396°

32. $\frac{40\pi}{3}$ 2400° 33. $-\frac{19\pi}{3}$ -1140° 34. 121π $21,780^\circ$

V.