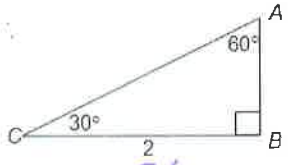
KEY

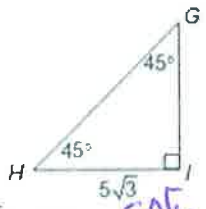
Unit 1 Review

Your test will cover all material from unit 1 and will be done without a calculator. This review will has some practice problems from many of the topics you learned in the last few weeks. Solutions with work for this review will be online at mskmathrhs.weebly.com. To best prepare for your test, you should complete this review, look over your notes and homework from this unit, and look over your last quizzes. Focus on the section where you missed homework or quiz questions. Good luck on your test tomorrow!

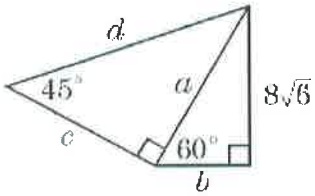
1.1 Special Right triangles



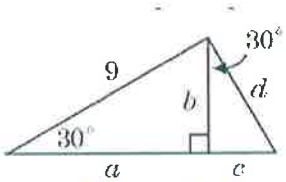
1. AB = $2/\sqrt{3}$
AC = $4/\sqrt{3}$



2. GH = $5\sqrt{6}$



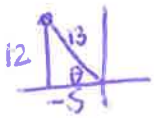
3. a = $10\sqrt{2}$ b = $8\sqrt{2}$
c = $8\sqrt{2}$ d = 32



4. a = $4.5\sqrt{3}$ b = 4.5
c = $\frac{4.5}{\sqrt{3}}$ d = $\frac{9}{\sqrt{3}}$

1.2-1.3 Trig Review (no calculator) SOHCAHTOA

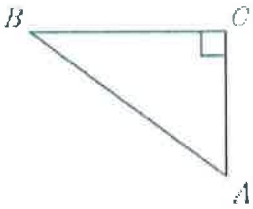
5. The terminal side of an angle θ passes through the point (-5, 12). Find the value of the six trig functions of θ



$\sin\theta = \frac{12}{13}$ $\csc\theta = 13/12$
$\cos\theta = -5/13$ $\sec\theta = 13/-5$
$\tan\theta = 12/-5$ $\cot\theta = -5/12$

6. $\sin\theta = -\frac{7}{8}$ and secθ > 0. Find the value of cotθ.
cos is positive!
$\frac{-\sqrt{15}}{7}$

Find an expression to solve for each of the following:



7. a = 3, m<B = 37°. Solve for c
$b = 3\tan 37$ m<A = 53°
$\boxed{c = \frac{3}{\cos 37}}$

8. b = 12, c = 17. Solve for m<A
$a = \sqrt{145}$
$\boxed{m\angle A = \cos^{-1}\left(\frac{12}{17}\right)}$
$m\angle B = \sin^{-1}\left(\frac{12}{17}\right)$

1.4-1.6 Degree and Radian Measurement

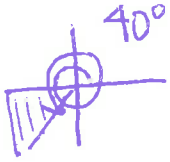
Find a coterminal angle for the given angle. Leave radian values in radians. ±360 or ±2π

9. -227° 133°
10. 470° 110°
11. 15° 375°
12. $\frac{\pi}{7}$ + $\frac{14\pi}{7}$ $\frac{15\pi}{7}$
13. $\frac{33\pi}{12}$ $\frac{9\pi}{12}$
14. $-\frac{14\pi}{5}$ $\frac{-4\pi}{5}$

Multiple answers are correct for coterminal!

Sketch the terminal side of the angle in the correct quadrant and determine the reference angle

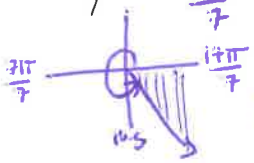
15. 580° 40°



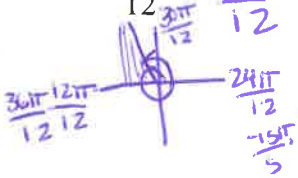
16. -264° 84°

17. 140° 40°

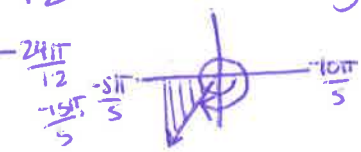
18. $\frac{11\pi}{7}$ $\frac{3\pi}{7}$



19. $\frac{31\pi}{12}$ $\frac{5\pi}{12}$



20. $-\frac{13\pi}{5}$ $\frac{2\pi}{5}$



Covert degree values to radians and radian values to degrees

21. 5° $\frac{\pi}{36}$

22. -120° $-\frac{2\pi}{3}$

23. 225° $\frac{5\pi}{4}$

24. $\frac{5\pi}{3}$ 300°

25. $\frac{\pi}{20}$ 9°

26. $\frac{3\pi}{4}$ 135°

27. A ferris wheel with a diameter of 220 ft takes 40 seconds to make one revolution. Find the angular velocity in radians per second and the linear velocity in ft/sec.

$\omega = \frac{\pi}{20}$ rad/sec $\quad v = \frac{11\pi}{2}$ ft/sec

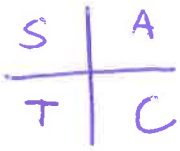
28. The wheel of a train makes 30 revolutions per second. Find the angular velocity in rad/min. Find the linear velocity of a point on the inside rim of the wheel 5 cm from the center in cm/sec.

$\omega = 3600\pi$ rad/min $\quad v = 300\pi$ cm/sec

1.7-1.8 Exact values and the unit circle

Understand the basic principles of the unit circle:

29. Which coordinate on the unit circle corresponds to sin θ? cos θ? tan θ? y x $\frac{y}{x}$



30. If sin θ > 0, then θ lies in quadrant(s) I & II

31. If sec θ < 0 and tan θ > 0, then θ lies in quadrant(s) III

Find the exact value of the following:

21. cos -30° $\frac{\sqrt{3}}{2}$

22. cot -120° $\frac{1}{\sqrt{3}}$

23. sin 225° $\frac{-1}{\sqrt{2}}$

24. $\sin\frac{5\pi}{3}$ $-\frac{\sqrt{3}}{2}$

25. $\cot\frac{3\pi}{2}$ 0

26. $\sec\frac{3\pi}{4}$ $-\sqrt{2}$

27. $4\cos\frac{5\pi}{3} + \sin^2\left(-\frac{5\pi}{4}\right)$ $2\frac{1}{2}$

28. $5\cos 4\pi + 2\sin\frac{\pi}{2}$ 7

29. $\cos^2 225° - \sec^2 120 + \tan 180°$ -3.5

30. $\frac{1}{2}\sin 330° + \frac{3}{2}\cos 300°$ $\frac{1}{2}$

31. $2\sin\frac{4\pi}{3} + \sin\frac{7\pi}{6}$ $\frac{-2\sqrt{3}-1}{2}$

32. $2\csc\frac{3\pi}{2} + 3\sec(-\pi)$ -5