1.8 “Sine”ing and “Cosine”ing It

Practice

I. Reducing complex fractions

Write each of the following as a simple fraction.

Rationalize the denominators when appropriate.

1. $\dfrac{\frac{1}{\sqrt{2}}}{\frac{1}{\sqrt{2}}}$

2. $\dfrac{\frac{8\sqrt{3}}{5}}{\frac{1}{5}}$

3. $\dfrac{8}{\frac{1}{2}}$

4. $\dfrac{\frac{7\sqrt{3}}{2}}{\frac{1}{2}}$

5. $\dfrac{1}{\sqrt{2}}$

6. $\dfrac{3}{\sqrt{3}}$

7. $\dfrac{4}{\sqrt{8}}$

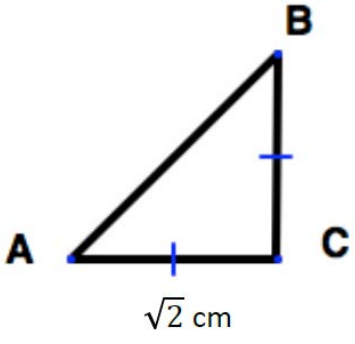
8. $\dfrac{\frac{2}{3}}{\frac{1}{2}}$

9. $\dfrac{\frac{2}{\sqrt{7}}}{\frac{5}{\sqrt{7}}}$

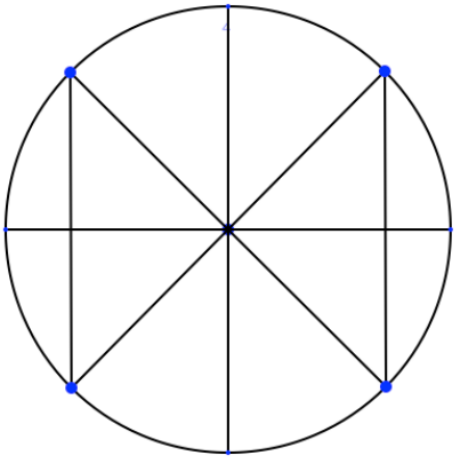
II. Radian Measure of an Angle

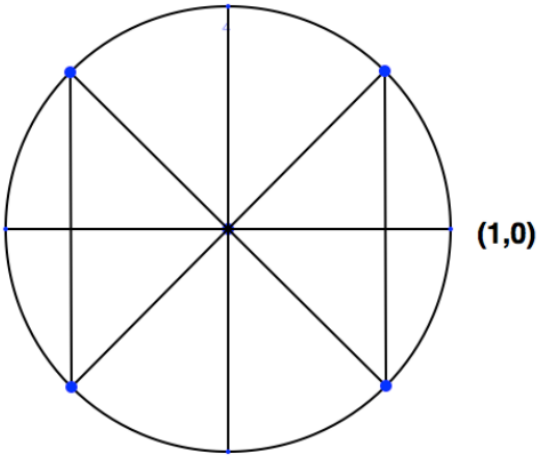
10. Triangle ABC is an isosceles right triangle. The length of one side is given.

Find the values for the missing sides and angles A and B.



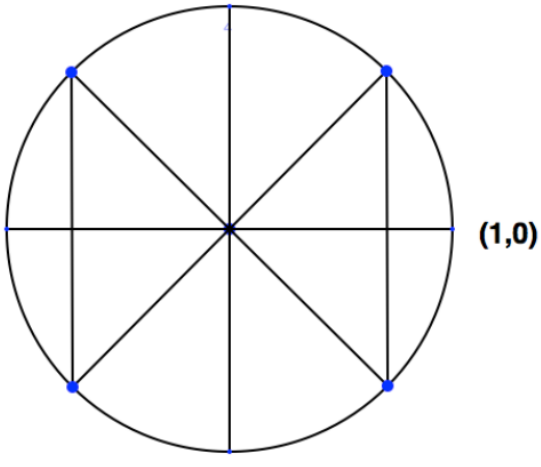
11. List the **angles of rotation** in radians of the four points on the given circle.





12. Use the values in #10 to write the **exact** coordinates of the 4 points on the circle. Be mindful of the numbers that are negative.

13. Find the arc length, *s,* from the point (1,0) to each of the 4 points around the circle. Record your answers as decimal approximations to the nearest thousandth.



Use your calculator to find the following values

14. $\sin\frac{5\pi}{4} \approx$

15. $\sin\frac{7\pi}{4} \approx$

16. Why are both of your answers negative?

17. $\cos\frac{\pi}{4} \approx$

18. $\cos\frac{7\pi}{4} \approx$

19. Why are both of your answers positive?

20. $\sin\frac{3\pi}{4} \approx$

21. $\cos\frac{3\pi}{4} \approx$

22. Why is one answer positive and one answer negative?

III. Trigonometric Values in Special Triangles

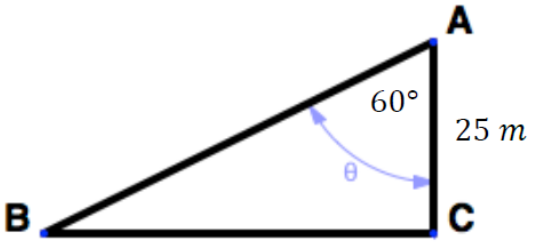
Angle C is the right angle in each of the triangles below. **Use the given information to find the missing sides and the missing angles. Then find the indicted trig values.** Rationalize denominators when appropriate. Do NOT change the values to decimals. Square roots are **exact** values. Decimal representations of the square roots are approximations.

23.

sin B =

cos B =

tan B =

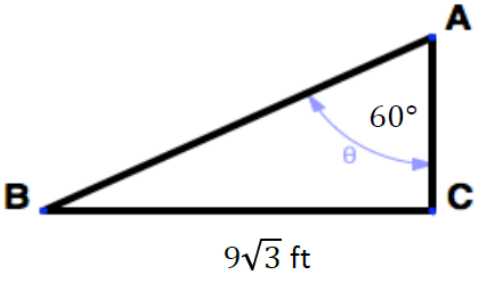


24.

sin A =

cos A =

tan A =

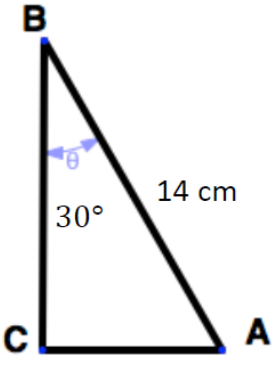


25.

sin A =

cos A =

tan A =

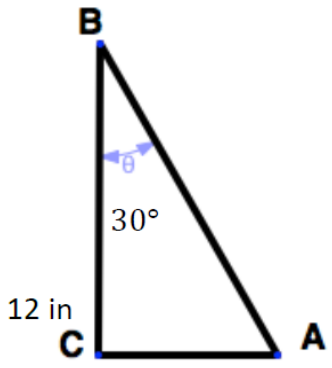


26.

sin B =

cos B =

tan B =



27. Explain where you see the meaning of the identity $\sin\theta = \cos(90° - \theta)$ in problems 23-26.

IV. Assessment – Khan Academy

1. Complete the following online worksheet in the Trigonometry unit of Khan Academy's Algebra 2 course:
   a. https://www.khanacademy.org/math/algebra2/trig-functions/trig-values-special-angles-alg2/e/trigonometric-functions-of-special-angles