

Chapter 4 Prerequisite Skills

1. Sketch an angle in standard position with each given measure.

a) 24°
 b) 104°
 c) 204°
 d) 304°

2. State the reference angle for each angle in standard position.

a) 55°
 b) 155°
 c) 255°
 d) 355°

3. Determine the measure of the three other angles in standard position, $0^\circ < \theta < 360^\circ$, that have a reference angle of

a) 40°
 b) 72°
 c) 88°
 d) 3°

4. Complete the table. Determine the measure of each angle in standard position given its reference angle and the quadrant in which the terminal arm lies.

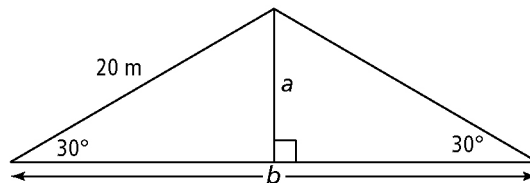
	Reference Angle	Quadrant	Angle in Standard Position
a)	30°	II	
b)	45°	III	
c)	60°	IV	

5. Determine if the pair of angles have the same reference angle.

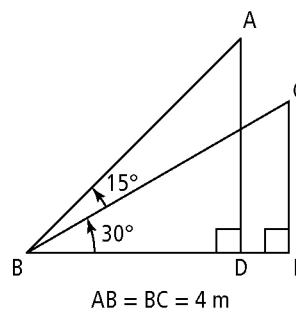
a) 50° , 140°
 b) 200° , 290°
 c) 216° , 324°
 d) 91° , 181°

6. Determine the exact value of each indicated side.

a) side a , side b



b) DE



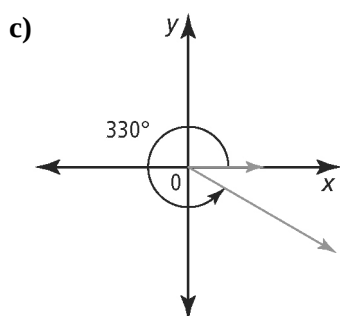
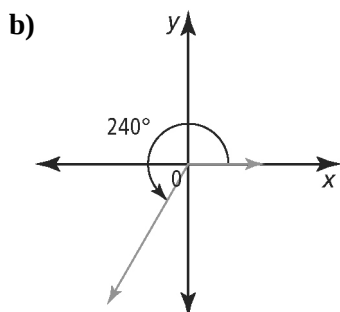
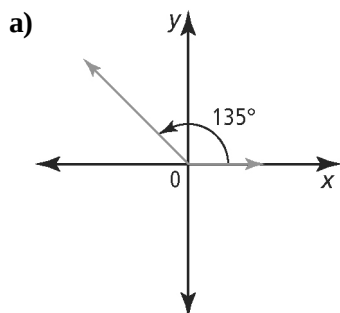
7. A clock has a minute hand that is 12 cm long. Determine the vertical distance of the tip of the minute hand between the times 8:05 a.m. and 8:25 a.m.

8. Sketch angles in standard position so that the terminal arm passes through each point.

a) (1, 5)
 b) (4, -3)
 c) (-5, 12)
 d) (2, 0)

9. Determine the exact values of the sine, cosine, and tangent ratios for each angle in #8.

10. Determine the exact values of the sine, cosine, and tangent ratios for each angle.



11. Without using a calculator, state whether each ratio is positive or negative.
- $\sin 100^\circ$
 - $\cos 200^\circ$
 - $\tan 300^\circ$
 - $\sin 350^\circ$

12. An angle is in standard position with its terminal arm in the stated quadrant. Determine the exact values for the other two primary trigonometric ratios for each.

a) $\sin \theta = \frac{-3}{5}$; quadrant III

b) $\cos \theta = \frac{2}{3}$; quadrant IV

c) $\tan \theta = \frac{-5}{12}$; quadrant II

13. Solve each equation without a calculator, for $0^\circ \leq \theta < 360^\circ$. Use a diagram involving a special right triangle.

a) $\sin \theta = \frac{-1}{\sqrt{2}}$

b) $\tan \theta = \frac{1}{\sqrt{3}}$

c) $\cos \theta = \frac{\sqrt{3}}{2}$

d) $\sin \theta = -1$

14. Solve each equation, for $0^\circ \leq \theta < 360^\circ$.

a) $\sin \theta = 0.7760$

b) $\cos \theta = -0.8090$

c) $\tan \theta = -0.9004$

d) $\sin \theta = -0.9848$

15. Is each statement true or false? Justify your answer.

a) $\sin 120^\circ = \cos 210^\circ$

b) $\cos 170^\circ = \cos 350^\circ$

c) $\sin 200^\circ = \sin 340^\circ$

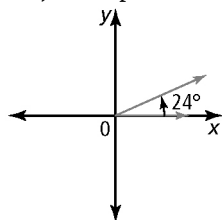
d) $\cos 300^\circ = \sin 150^\circ$

***This skills practice reviews Pre-Calc11 Unit 2B.**

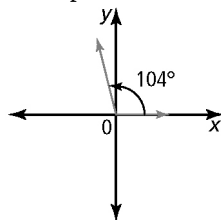
Use your Pre-Calc11 notes (also found on the KRSS Moodle site) to assist you.

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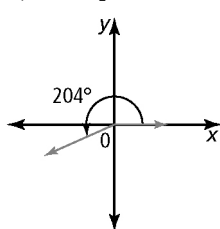
1. a) Example:



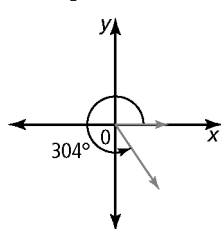
b) Example:



c) Example:



d) Example:



2. a) 55° b) 25° c) 75° d) 5°

3. a) $140^\circ, 220^\circ, 320^\circ$ b) $108^\circ, 252^\circ, 288^\circ$

c) $92^\circ, 268^\circ, 272^\circ$ d) $177^\circ, 183^\circ, 357^\circ$

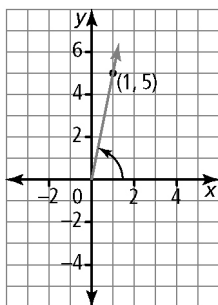
4. a) 150° b) 225° c) 300°

5. a) No b) No c) Yes d) No

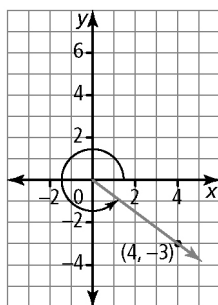
6. a) $a = 10, b = 20\sqrt{3}$ b) $DE = 2\sqrt{3} \text{ m} - 2\sqrt{2} \text{ m}$

7. $12\sqrt{3} \text{ cm}$

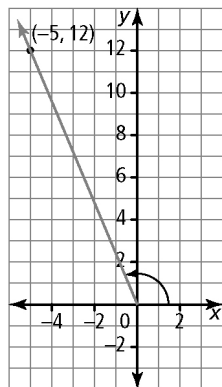
8. a)



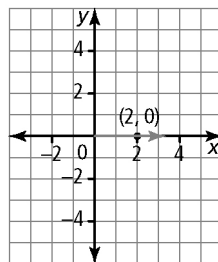
b)



c)



d)



9. a) $\sin \theta = \frac{5}{\sqrt{26}}; \cos \theta = \frac{1}{\sqrt{26}}; \tan \theta = 5$

b) $\sin \theta = \frac{-3}{5}; \cos \theta = \frac{4}{5}; \tan \theta = \frac{-3}{4}$

c) $\sin \theta = \frac{12}{13}; \cos \theta = \frac{-5}{13}; \tan \theta = \frac{12}{-5}$

d) $\sin \theta = 0; \cos \theta = 1; \tan \theta = 0$

10. a) $\sin \theta = \frac{1}{\sqrt{2}}; \cos \theta = \frac{-1}{\sqrt{2}}; \tan \theta = -1$

b) $\sin \theta = \frac{-\sqrt{3}}{2}; \cos \theta = \frac{-1}{2}; \tan \theta = \sqrt{3}$

c) $\sin \theta = \frac{-1}{2}; \cos \theta = \frac{\sqrt{3}}{2}; \tan \theta = \frac{-1}{\sqrt{3}}$

11. a) positive b) negative c) negative d) negative

12. a) $\cos \theta = \frac{-4}{5}; \tan \theta = \frac{3}{4}$

b) $\sin \theta = \frac{-\sqrt{5}}{3}; \tan \theta = \frac{-\sqrt{5}}{2}$

c) $\sin \theta = \frac{5}{13}; \cos \theta = \frac{-12}{13}$

13. a) $225^\circ, 315^\circ$ b) $30^\circ, 210^\circ$ c) $30^\circ, 330^\circ$ d) 270°

14. a) $51^\circ, 129^\circ$ b) $144^\circ, 216^\circ$ c) $138^\circ, 318^\circ$

d) $260^\circ, 280^\circ$

15. a) False. $\sin 120^\circ$ is in quadrant II so it is positive, and $\cos 210^\circ$ is in quadrant III so it is negative.

b) False. $\cos 170^\circ$ is in quadrant II so it is negative, and $\cos 350^\circ$ is in quadrant IV so it is positive.

c) True. The reference angle for both $\sin 200^\circ$ and $\sin 340^\circ$ is 20° . Both are negative.

d) True. The reference angles are not equal, but both ratios, $\cos 300^\circ$ and $\sin 150^\circ$ are equal to 0.5. Both are positive since the cosine ratio is positive in quadrant IV and the sine ratio is positive in quadrant II.