Check answers to ch.8 review sheet:

1. **A**
2. **B**

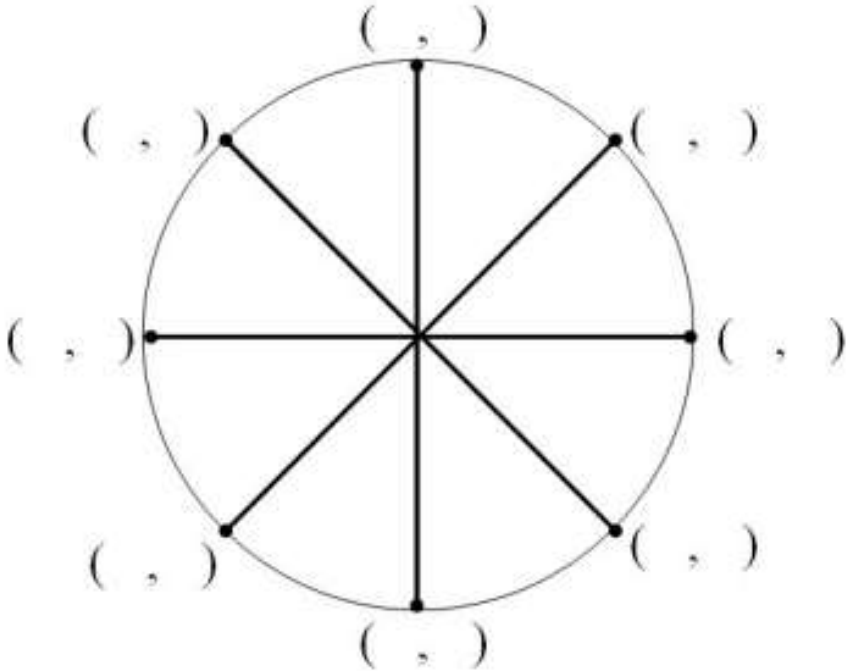
8. **B**
9. **A**
10. **D**
11. **C**
12. **A**
13. **B**
14. **D**
15. **C**
16. **D**
17. **D**
18. **A**
19. **D**
20. **C**

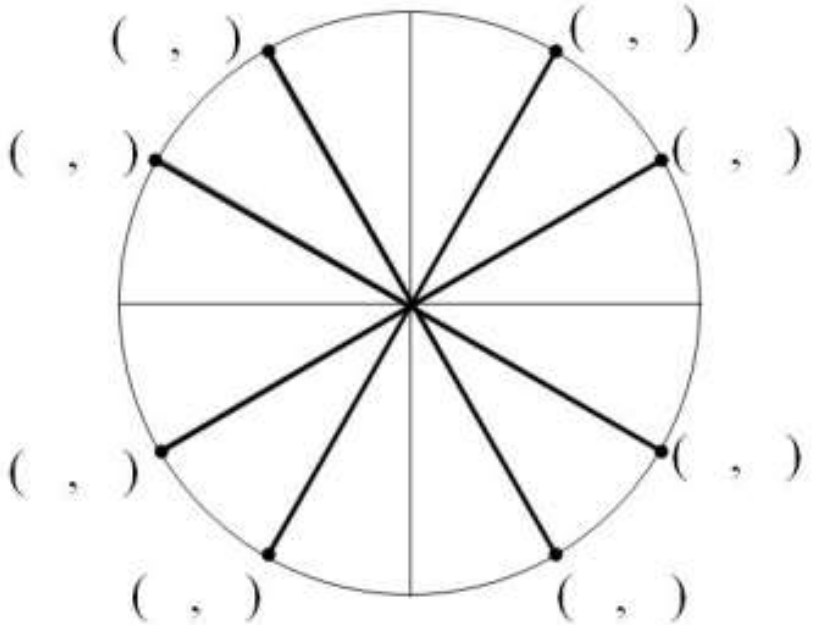
Trig information sheet→ **HELPFUL STUDY TOOL FOR FINAL EXAM!**

Quiz yourself: complete as much as possible without looking at your notes!

This page is OPTIONAL work, although you will be expected to know the content for the final exam.

Label each set of given coordinates and write the corresponding radian value.





$\sin\theta = \frac{y}{r}$ $\cos\theta =$ ___ $\tan\theta =$ ___

$\csc\theta = \frac{r}{y}$ $\sec\theta =$ ___ $\cot\theta =$ ___

Principal Values are used to find unique solutions:

Sin$x$ and Tan$x$, refer only to Quadrant ___ or ___.

Cos$x$, refer only to Quadrant ___ or ___.

Name the function that best completes each identity statement:

Reciprocal identities:

1. _____ $= \dfrac{1}{\sec\theta}$
2. _____ $= \dfrac{1}{\sin\theta}$
3. _____ $= \dfrac{1}{\cot\theta}$
4. _____ $= \dfrac{1}{\csc\theta}$
5. _____ $= \dfrac{1}{\tan\theta}$
6. _____ $= \dfrac{1}{\cos\theta}$

Quotient Identities:

7. _____ $= \dfrac{\cos\theta}{\sin\theta}$
8. _____ $= \dfrac{\sin\theta}{\cos\theta}$

Double Angle Identities:

9. $\sin(2\theta) =$ _____
10. $\cos(2\theta) = \cos^2\theta -$ _____

Pythagorean identities:

11. _____ + _____ $= 1$
12. $\tan^2\theta + 1 =$ _____
13. $1 + \cot^2\theta =$ _____

14. Clearly show how to derive the Pythagorean identities in #12 and #13 from the identity given in #11.

HINT: use division

CHECK YOUR ANSWERS!!

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Label each set of given coordinates and write the corresponding radian value.

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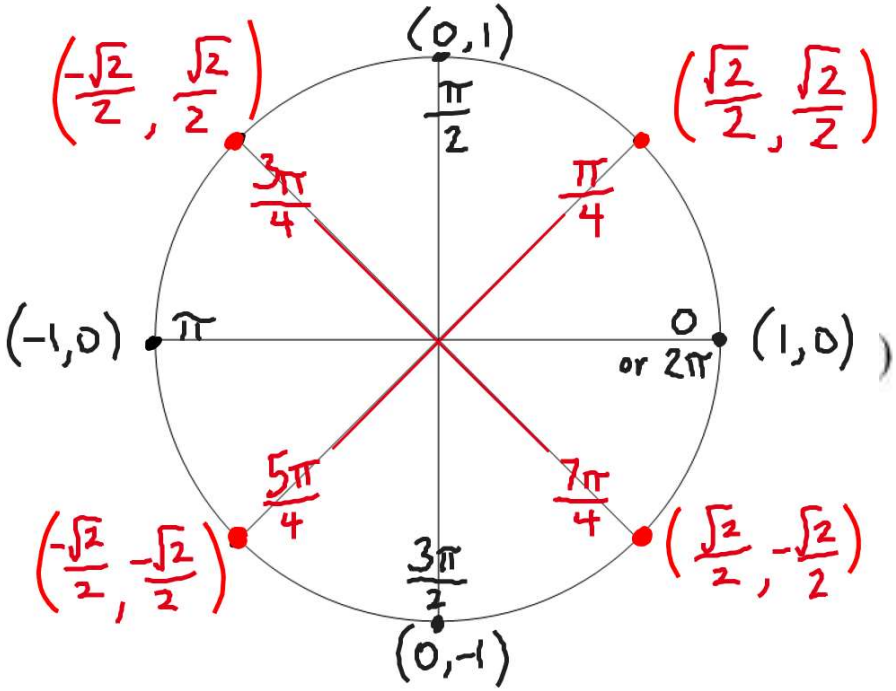
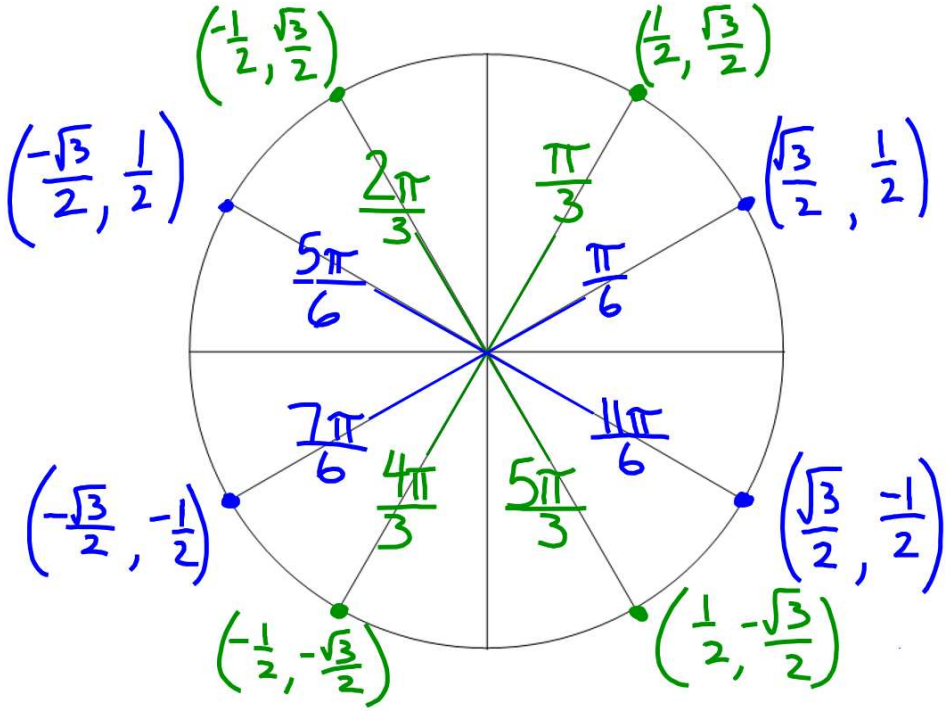




$$\sin\theta = \frac{y}{r} \quad \cos\theta = \frac{x}{r} \quad \tan\theta = \frac{y}{x}$$

$$\csc\theta = \frac{r}{y} \quad \sec\theta = \frac{r}{x} \quad \cot\theta = \frac{x}{y}$$

Principal Values are used to find unique solutions:

Sin$x$ and Tan$x$, refer only to Quadrant I (+) or IV (−)

Cos$x$, refer only to Quadrant I (+) or II (−)

CHECK YOUR ANSWERS!!

Name the function that best completes each identity statement:

Reciprocal identities:

1. $\cos\theta = \frac{1}{\sec\theta}$
2. $\csc\theta = \frac{1}{\sin\theta}$
3. $\tan\theta = \frac{1}{\cot\theta}$
4. $\sin\theta = \frac{1}{\csc\theta}$
5. $\cot\theta = \frac{1}{\tan\theta}$
6. $\sec\theta = \frac{1}{\cos\theta}$

Quotient Identities:

7. $\cot\theta = \frac{\cos\theta}{\sin\theta}$
8. $\tan\theta = \frac{\sin\theta}{\cos\theta}$

Double Angle Identities:

9. $\sin(2\theta) = 2\sin\theta\cos\theta$
10. $\cos(2\theta) = \cos^2\theta - \sin^2\theta$

Pythagorean identities:

11. $\sin^2\theta + \cos^2\theta = 1$
12. $\tan^2\theta + 1 = \sec^2\theta$
13. $1 + \cot^2\theta = \csc^2\theta$

14. Clearly show how to derive the Pythagorean identities in #12 and #13 from the identity given in #11. ***HINT: use division***

$$\frac{\sin^2\theta}{\sin^2\theta} + \frac{\cos^2\theta}{\sin^2\theta} = \frac{1}{\sin^2\theta}$$

$$\frac{\sin^2\theta}{\cos^2\theta} + \frac{\cos^2\theta}{\cos^2\theta} = \frac{1}{\cos^2\theta}$$

Final exam info:

45 questions, 90 points.

Multiple choice, NO calculator.

Fill in unit circle, use it to find exact values.

# of questions	
8	Ch.8 polar coordinates/equations
9	Ch.11 conics
5	Ch.13 limits
23	Trig: unit circle, triangles, all 6 functions, identities, principal values

Page 1 of pink sheet will be provided on final exam

Polar Coordinates

$r^2 = x^2 + y^2$ or $r = \sqrt{x^2 + y^2}$

$\tan\theta = \frac{y}{x}$

$x = r\cos\theta$

$y = r\sin\theta$

polar form of a complex number

$r(\cos\theta + i\sin\theta)$

$z_1 \cdot z_2 =$

$r_1 r_2 \left[\cos(\theta_1 + \theta_2) + i\sin(\theta_1 + \theta_2)\right]$

$\frac{z_1}{z_2} = \frac{r_1}{r_2}\left[\cos(\theta_1 - \theta_2) + i\sin(\theta_1 - \theta_2)\right]$

DeMoivre's Theorem

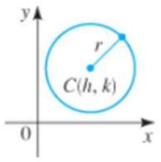
$\left[r(\cos\theta + i\sin\theta)\right]^n$

$= r^n(\cos n\theta + i\sin n\theta)$

Conic Sections

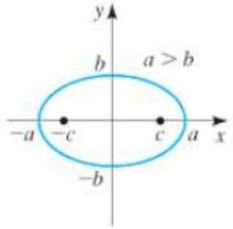
Circles

$(x-h)^2 + (y-k)^2 = r^2$



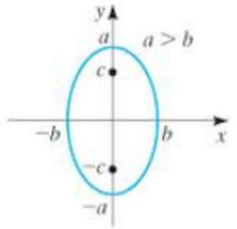
Ellipses

$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$



Foci $(\pm c, 0)$, $c^2 = a^2 - b^2$

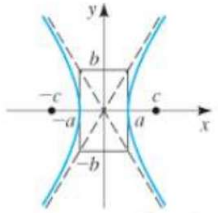
$\frac{x^2}{b^2} + \frac{y^2}{a^2} = 1$



Foci $(0, \pm c)$, $c^2 = a^2 - b^2$

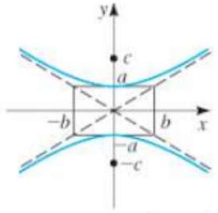
Hyperbolas

$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$



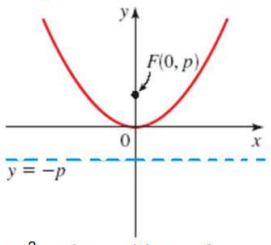
Foci $(\pm c, 0)$, $c^2 = a^2 + b^2$

$\frac{y^2}{a^2} - \frac{x^2}{b^2} = 1$

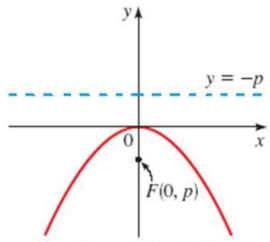


Foci $(0, \pm c)$, $c^2 = a^2 + b^2$

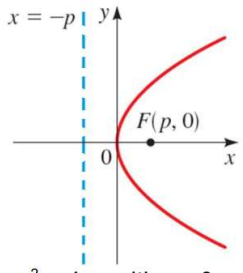
Equations and Graphs of Parabolas



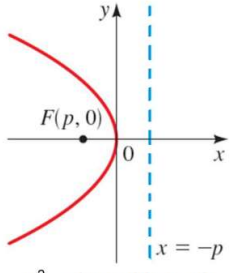
$x^2 = 4py$ with $p > 0$



$x^2 = 4py$ with $p < 0$

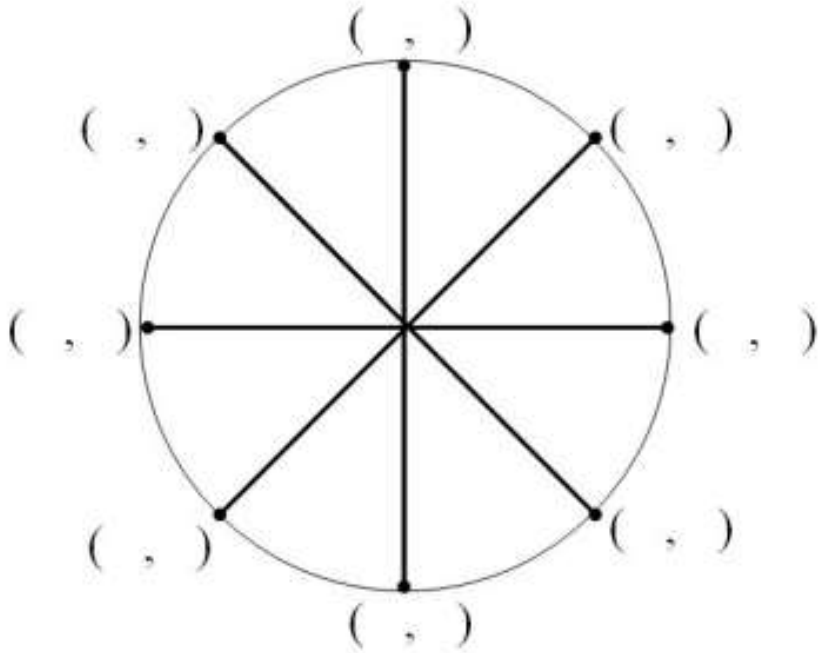


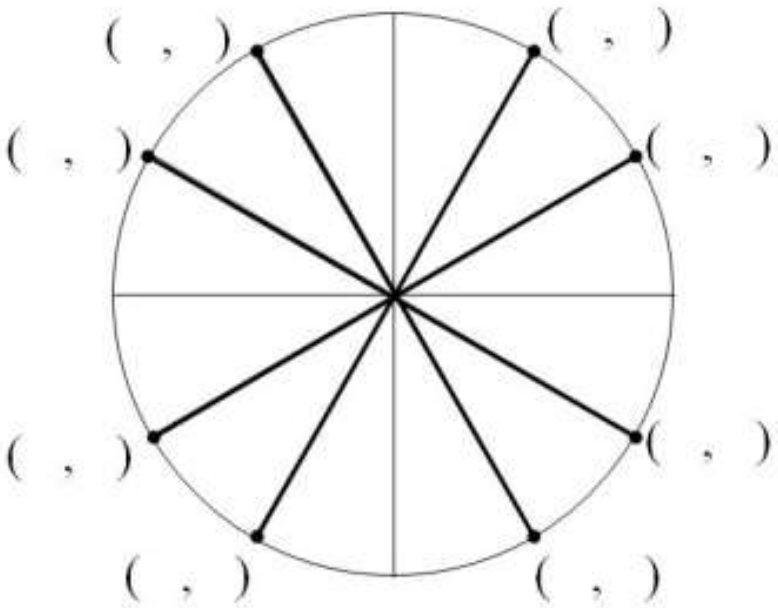
$y^2 = 4px$ with $p > 0$



$y^2 = 4px$ with $p < 0$

You will fill in the blanks for principal values, unit circle, and identities on final exam day.





$\sin\theta = \frac{y}{r}$ $\cos\theta =$ ___ $\tan\theta =$ ___

$\csc\theta = \frac{r}{y}$ $\sec\theta =$ ___ $\cot\theta =$ ___

Principal Values are used to find unique solutions:

Sin$x$ and Tan$x$, refer only to Quadrant ___ or ___.

Cos$x$, refer only to Quadrant ___ or ___.

After filling in the blanks, you may use the information for reference during the exam.

Name the function that best completes each identity statement:

Reciprocal identities:

1. _____ $= \frac{1}{\sec\theta}$
2. _____ $= \frac{1}{\sin\theta}$
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Quotient Identities:

7. _____ $= \frac{\cos\theta}{\sin\theta}$
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Double Angle Identities:

9. $\sin(2\theta) =$ _____
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Pythagorean identities:

11. _____ + _____ = 1
12. $\tan^2\theta + 1 =$ _____
13. $1 + \cot^2\theta =$ _____

14. Clearly show how to derive the Pythagorean identities in #12 and #13 from the identity given in #11.

HINT: use division

Principal Values:

Principal values create a unique (one) solution:

Sinθ and Tanθ → Quadrant I (+)

Quadrant IV (-)

$$-\frac{\pi}{2} \le \theta \le \frac{\pi}{2}$$

Cosθ → Quadrant I (+)

Quadrant II (-)

$$0 \le \theta \le \pi$$