Math 1540 Precalculus Mathematics

Catalog Description:

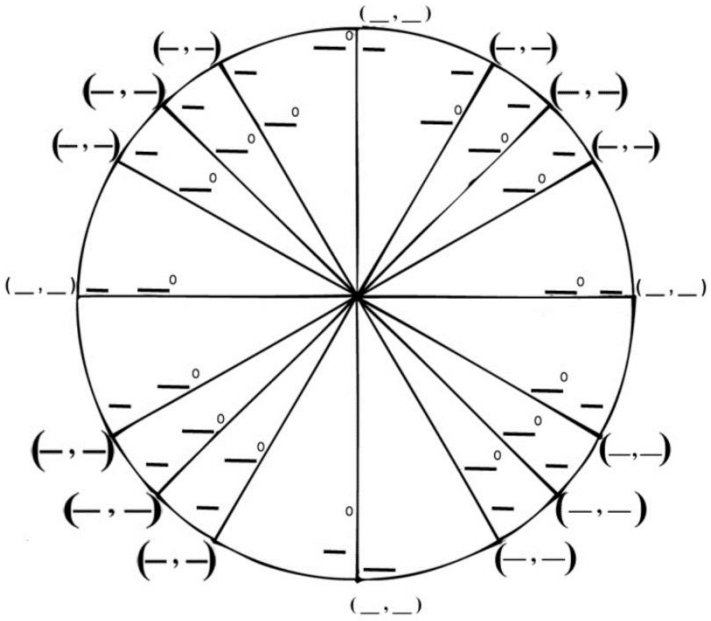
Preparation for calculus: polynomial, absolute value, radical, rational, exponential, logarithmic, and trigonometric functions and their graphs; analytic geometry, polar coordinates. Transfer Credit: CSU; UC.

SLO:

Course #1 - Solve exponential and logarithmic equations.
Course #2 - Graph sine and cosine functions and identify the amplitude, period, vertical translation, and phase shift for these functions.

Sample Problems:

1. Fill in all the blanks on the unit circle.



2. Evaluate the following value if it exists.
   - $\sin\left(\frac{5\pi}{2}\right)$
   - $\cos\left(-\frac{\pi}{3}\right)$
   - $\sec(0)$
   - $\cos\left(\frac{7\pi}{3}\right)$

- $\tan\left(-\frac{\pi}{4}\right)$
- $\cot\left(\frac{13\pi}{6}\right)$
- $\csc(2\pi)$

3. Evaluate

- $5\left[4^2+3\left(2^3\right)\right]$
- $-4\left(5-12\right)+4\left(-2\right)$
- $\frac{7\left(3^2-5\right)}{16-2\times6}$

4. Solve

- $4x-6=10$
- $3x-\left(-2x+6\right)=4\left(x-4\right)+2x$
- $\frac{1}{2}\left(r-3\right)+2=\frac{1}{3}\left(r-9\right)$

5. Graph $2x-y=3$ by finding intercepts or using Slope-Intercept form.

6. Is (2, 5) a solution of $x+y=7$?

7. Write the equation of a line passing through (2, 1) and (-2, 2).

8. Graph $y=x^2$

9. Simplify

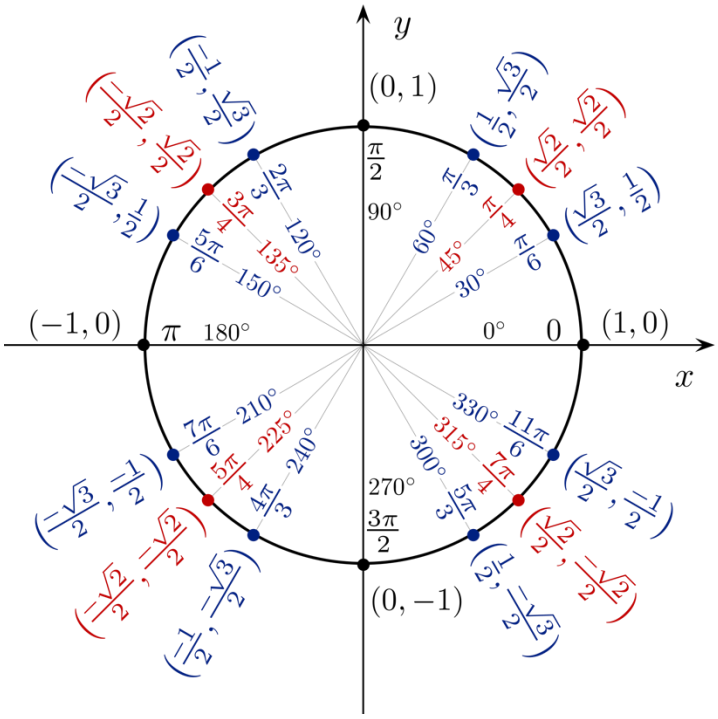
- $\left(3x^2y^3\right)^3$
- $\left(\frac{7}{x}\right)^6$
- $\frac{y^4\times y^{-2}}{y^{-5}}$
- $\left(x+3\right)^4$

10. Evaluate

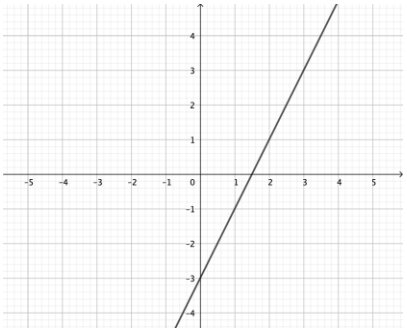
- $\sqrt{144}$

- $\sqrt[3]{64}$
- $(16)^{1/4}$

Solutions:

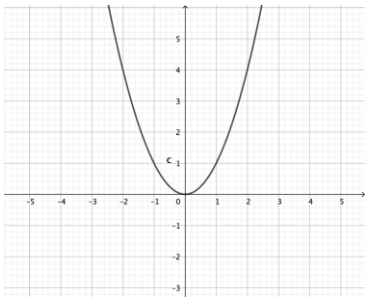
1. 

2.
   a. 1
   b. ½
   c. 1
   d. ½
   e. -1
   f. $\sqrt{3}$
   g. Undefined
3.
   a. 200
   b. 20
   c. 7
4.
   a. x=4
   b. x=10
   c. r=-21
5.



6. Yes

7. $y = -\frac{1}{4}x + \frac{3}{2}$ □

8. 

9.
   a. $27x^6y^9$
   b. $\frac{7^6}{x^6}$
   c. y^7
   d. can't use power rules for exponents, have to expand $x^3 + 9x^2 + 27x + 27$

10. 12

11. 4

12. 2