

## Math 1530 Plane Trigonometry

### Catalog Description:

This course includes the study of trigonometric functions, their inverses and their graphs, identities and proofs related to trigonometric expressions, trigonometric equations, solving right triangles, solving triangles using the Law of Cosines and the Law of Sines, polar coordinates, and introduction to vectors. C-ID: MATH 851.  
Transfer Credit: CSU.

### SLO:

Course #1 - Apply the unit circle and angle approaches to trigonometry using radian and degree measurements.

Course #2 - Use computation, analysis, and synthesis to solve trigonometry problems including trigonometric equations and their use in triangle applications.

Course #3 - Demonstrate understanding of inverse trigonometric functions and use computation, analysis, and synthesis to solve problems requiring their applications.

### Sample Problems:

Operations with real numbers

1. Evaluate  $5[4^2 + 3(2^3)]$

2. Evaluate  $2 \times \frac{1}{3} + \frac{1}{2}$

3. Evaluate  $-4(5 - 12) + 4(-2)$

4. Evaluate  $\frac{7(3^2 - 5)}{16 - 2 \times 6}$

Solving equations

5. Solve  $4x - 6 = 10$

6. Solve  $3x - (-2x + 6) = 4(x - 4) + 2x$

7. Solve  $\frac{1}{2}(r - 3) + 2 = \frac{1}{3}(r - 9)$

### Graphing lines

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

### Finding solutions of equations

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

### Working with exponents

8. Simplify  $(9x^5)^2$  □

9. Simplify  $(3x^2y^3)^3$

10. Simplify  $\left(\frac{7}{x}\right)^6$

11. Simplify  $\frac{y^4 \times y^{-2}}{y^{-5}}$

12. Simplify  $(x + 3)^4$

### Working with roots

13. Evaluate  $\sqrt{144}$

14. Evaluate  $\sqrt[3]{64}$

15. Evaluate  $(16)^{1/4}$

16. Factor  $x^2 + 10x + 21$

17. Factor  $25n^2 - 121$

18. Factor  $9t^2 - 42t + 49$

## Solutions

1. 200

2.  $\frac{7}{6}$

3. 20

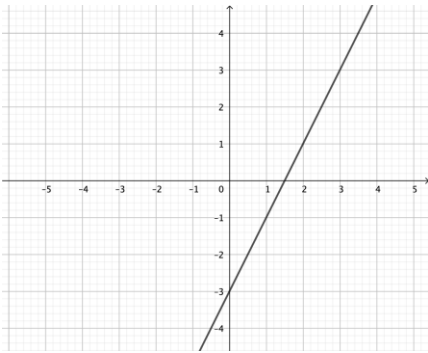
4. 7

5.  $x = 4$

6.  $x = 10$

7.  $r = -21$

8. Intercepts:  $(0, -3)$  and  $(\frac{3}{2}, 0)$ , Slope Intercept form:  $y = 2x - 3$



9. yes

10.  $81x^{10}$

11.  $27x^6y^9$

12.  $\frac{7^6}{x^6}$

13.  $y^7$

14. Can't use power rules for exponents, have to expand  $x^3 + 9x^2 + 27x + 27$

15. 12

16. 4

17. 2

18.  $(x + 3)(x + 7)$

19.  $(5n - 11)(5n + 11)$

20.  $(3t - 7)^2$