



Math 1520 Finite Mathematics

Catalog Description:

Linear functions, systems of linear equations and inequalities, matrices, linear programming, mathematics of finance, sets and Venn diagrams, combinatorial techniques and an introduction to probability. This course has applications in business, economics and social sciences C-ID: MATH 130. Transfer Credit: CSU; UC.

SLO:

Course #1 - Solve business / financial problems by the use of matrices.

Course #2 - Formulate and solve linear programming problems via the Simplex Method.

Sample Problems:

Operations with real numbers

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

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

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

4. Evaluate with a calculator $100 \left[\frac{(1.041)^7 - 1}{.041} \right]$

Solving equations

5. Solve $4x - 6 = 10$

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

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

Solving inequalities

8. Solve and graph $-5 \leq k + 6$

9. Solve and graph $4x - 3x > 10 - 4x + 7x$

Graphing lines

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

Finding solutions of equations

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

Writing the equation of a line

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

Working with exponents

13. Simplify

$$(9x^5)^2 \square$$

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

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

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

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

Working with roots

18. Evaluate $\sqrt{144}$

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

20. Evaluate $(16)^{\frac{1}{4}}$

Exponential and Logarithmic functions

21. Graph $f(x) = 3^x$

22. Solve $\log_8 64 = x$

23. Solve $\log_3(9x + 8) = 2$

24. Solve $3^x = 9.42$

Functions

25. If $f(x) = -x^2 + 5x - 3$, what is $f(4)$?

Solutions

1. 200

2. 20

3. 7

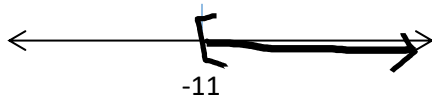
4. 792.23 (rounded)

5. $x = 4$

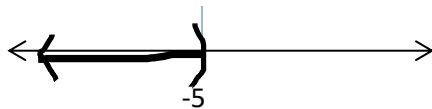
6. $x = 10$

7. $r = -21$

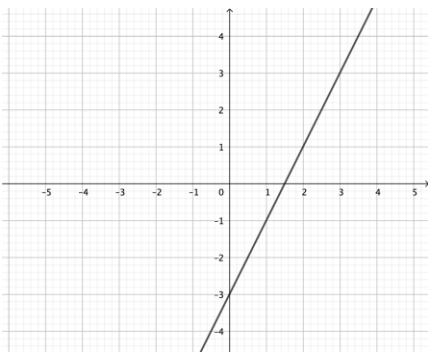
8. $k^3 - 11$



9. $x < -5$



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



11. yes

$$12. y = \frac{1}{4}x + \frac{1}{2}$$

$$13. 81x^{10}$$

$$14. 27x^6y^9$$

$$15. \frac{7^6}{x^6}$$

$$16. y^7$$

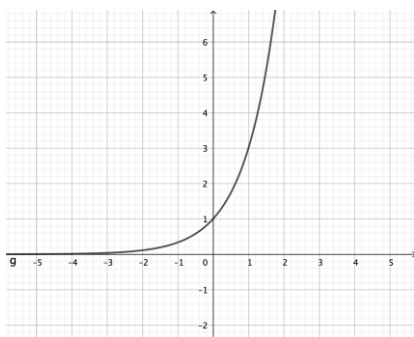
17. can't use power rules for exponents, have to expand $x^3 + 9x^2 + 27x + 27$

18. 12

19. 4

20. 2

21.



22. 2

$$23. x = \frac{1}{9}$$

$$24. x = \frac{\ln 9.42}{\ln 3} \approx 2.04$$

25. 1