

**Finite Mathematics Practice Test #1 covering Ch. 1 – 4****Name:**

*Please attach all answers and work on other paper. Only write your name on this sheet. Work problems in order.*

1. Find the expressions for the Revenue, Cost, and Profit from selling  $x$  thousand items given:

Single Item Price	Fixed Cost	Variable Cost
\$8.00	\$71,174	$3816x$

2. Factor completely:  $49x^2 - 36$

3. Simplify the complex fraction:  $\frac{\frac{4}{3r-1} - 4}{\frac{4}{3r-1} + 4}$

4. Rachel just received a 6% raise at work. She will be earning \$11.66 per hour now. What was her hourly rate before the raise?

5. Use the quadratic formula to solve the equation. Give BOTH exact and approximate answers.

$$5m^2 + 12m + 6 = 0$$

6. Find the  $x$  and  $y$  intercepts of the graph of the equation:  $-2x + y = 2$

7. Find the equation of a line passing through  $(0, 4)$  and having a slope of  $\frac{6}{7}$ .

8. Find the linear regression equation for the following:
- |     |   |    |    |    |
|-----|---|----|----|----|
| $x$ | 2 | 4  | 5  | 6  |
| $y$ | 7 | 11 | 13 | 20 |

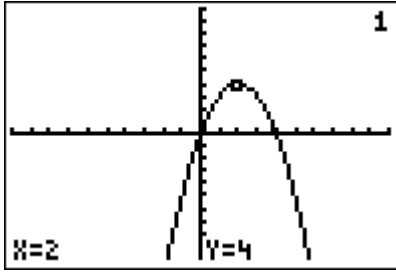
9. Show the solution to the following inequality with interval notation and on a number line.  $|r - 2.5| < 3$

10. The profit made when  $t$  units are sold is given by  $P(t) = t^2 - 36t + 323$ . Determine the number of units that must be sold to break even.

11. Find  $\frac{f(x+h) - f(x)}{h}$  for  $f(x) = 6 - 9x^2$ .

12. At a manufacturing plant, the total cost (in dollars) to produce  $x$  items is  $C(x) = 5.54x + 33,000$

- Determine the average per item if 100,000 items are produced.
- What is the marginal cost per item?



13. What is the equation for the parabola given?

14. Graph the polynomial function  $h(x) = -(x + 4)^2(x - 1)(x - 6)$ .

15. Determine the horizontal and vertical asymptotes of  $g(x) = \frac{8 - 4x}{2x + 2}$

16. Convert  $\log_2 8 = 3$  to exponential form.

17. Convert  $4^2 = 16$  to logarithmic form.

18. Condense to a single logarithm:  $7 \ln x + 3 \ln(x - 4) - 2 \ln x^3$

19. Solve:  $\log_5(x + 4) = 4$

20. Solve:  $7^{4c-7} = 8$