

Math 90 – Exam 1 Review Sheet

Review Sections R.1-R.6

- Graph the inequality, writing the solution in set-builder and interval notation: $3(5 - 2x) > 9$
- Solve: $x^3 - 4x^2 - 45x = 0$
- Factor: $3a^2 + 11a - 4$
- Factor: $8x^6 - 27y^3$
- Graph the equation: $y = -3x + 6$
- Graph the equation: $3y = x$
- Graph the equation: $x = -5$
- Find the slope of the line between the points $(-3, 4)$ and $(0, -1)$.
- Find the equation of the line with slope = $\frac{1}{2}$ which contains the point $(4, -6)$.
- Find the equation of the line passing through the points $(-3, 4)$ and $(0, -1)$.

11. Find the values where $\frac{7x+2}{x^3+2x^2-15x}$ is undefined.

12. Write in lowest terms: $\frac{y-x}{x^2-y^2}$

13. Divide: $\frac{x^2-10x+24}{2x^2-5x-12} \div \frac{x^2-9x+18}{4x^2-9}$

14. Subtract and write in lowest terms:

$$\frac{b}{b^2+2b-8} - \frac{2}{b^2+3b-4}$$

15. Simplify:

$$6 - \frac{2}{a+1}$$

$$3 - \frac{1}{a+1}$$

16. Divide: $(x^3 - 7x - 6) \div (x + 2)$

17. Solve: $\frac{3}{2p-1} = \frac{5}{3p+2}$

18. Solve: $\frac{b}{b-5} - \frac{2}{b-6} = \frac{3}{b^2-11b+30}$

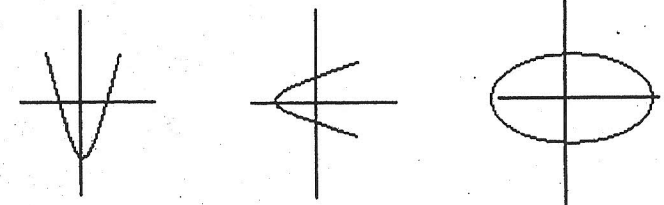
19. A boat goes 20 miles upstream in the same time it takes to go 60 miles downstream. The current flows at 4 mph. Find the boat speed (with no current).

20. Joy can paint a house in 20 hours, and Amy can paint one in 30. How long does it take working together?

Chapter 7

1. If $f(x) = \begin{cases} 3x+2, & x \geq 0 \\ 5x-1, & x < 0 \end{cases}$ find $f(-2)$, $f(0)$ and $f(3)$

2. For each of the following graphs, determine whether it's a function.



3. Find the domain and range of $f(x) = x^2 - 4$

4. Find the domain and range of $f(x) = \sqrt{9-x}$

5. The cost of producing a book is a 2000 flat rate (for print setup), plus \$6 per book for the material costs (paper and ink).

- Write a function describing cost, $C(x)$, where x is the number of books produced.
- How much does it cost to produce 100 books?
- If each book is sold for \$10, write a function describing revenue (money taken in), $R(x)$, where x is the number of books sold.
- How much revenue is earned by selling 100 books?
- If profit, $P(x) = R(x) - C(x)$, what is the break-even point?

6. Graph: $f(x) = -x - 5$

