

Math142 Week In Review # 1

The Most Important Problems to Understand - This Week

Algebra Review

1. Simplify: $16^{-\frac{3}{2}}$

2. Multiply: $(e^x - e^{2x})(e^{-x} + e^{-2x})$

3. Solve for y : $4^y = \frac{8^{2y}}{\sqrt{32}}$

4. Tonya had $\frac{1}{3}$ of the problems finished before dinner. After dinner she completed 8 more problems, and then took a break since she was half way done. How many problems were assigned?

Find the domain of each function in problems 5-10.

5. $f(x) = \sqrt{3}x^2 - 4x + 1$

6. $f(x) = \sqrt[3]{x+1}$

7. $f(x) = \sqrt{x^2 - 4}$

8. $f(x) = \begin{cases} -x & \text{if } x < 0 \\ x+1 & \text{if } x \geq 2 \end{cases}$

9. $f(x) = |x|$

10. $f(x) = \frac{\sqrt{x+5}}{x+1}$

11. Be able to express your answer in each of the following forms:

Interval	Inequality	Graph
a. $[-4, 3)$		_____
b.	$-2 < x \leq 5$	_____

12. Company XYZ makes stereos for \$135 each, pays rent of \$875 per month, \$100 per month for utilities and \$2600 per month in salaries. The store across the street only pays \$680 per month rent. If the stereos sell for \$280 each, find:

a) cost equation b) revenue equation c) break even point d) profit or loss when 2000 stereos are made and sold each month.

13. Given $f(x) = x^2 - 6x + 8$, $g(x) = \sqrt{9 - x^2}$, and $h(x) = x^2 - 16$.

a. Find $(f - h)(x)$ and state the domain.

b. Find $\left(\frac{f}{h}\right)(x)$ and state the domain.

c. Find $\left(\frac{h}{g}\right)(x)$ and state the domain.

14. Find the difference quotient for the function $f(x) = x^2 - 3x + 5$

15. Find the difference quotient for the function $f(x) = \frac{x+1}{x}$

16. Find the difference quotient for the function $f(x) = \sqrt{4x-1}$

17. Describe the graph of $y = -(x-5)^2 + 4$ as related to the graph of $y = x^2$

a) A rigid transformation of the graph of $y = x^2$, shifted right 5, up 4, and reflected about the x-axis.

b) A rigid transformation of the graph of $y = x^2$, shifted right 4, up 5, and reflected about the x-axis.

c) A rigid transformation of the graph of $y = x^2$, shifted left 5, up 4, and reflected about the x-axis.

d) A rigid transformation of the graph of $y = x^2$, shifted right 5, reflected about the x-axis, and shifted up 4.

e) none of these