

Advanced Functions - Review for Unit # 4 Test WS

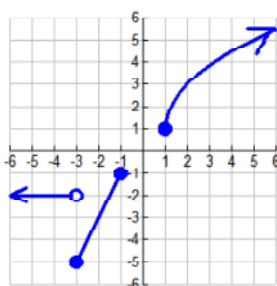
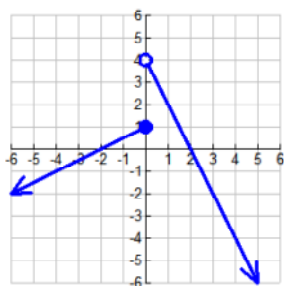
Answer Section

SHORT ANSWER

1. a.) $[-3, 5)$
 b.) $(-\infty, -2) \cup (-2, 3) \cup (3, \infty)$
 c.) $(-\infty, -4] \cup (3, \infty)$
2. quadratic $(y = x^2)$
 cubic $(y = x^3)$
 absolute value $(y = |x|)$
 cube root $(y = \sqrt[3]{x})$
 square root $(y = \sqrt{x})$
3. Domain: $(-\infty, \infty)$
 Range: $[-2, \infty)$
4. Domain: $[-4, \infty)$
 Range: $[1, \infty)$
5. Asymptote: HA: $y = -5$
 Domain = $(-\infty, \infty)$
 Range = $(-5, \infty)$
6. Asymptote: VA: $x = 3$
 Domain = $(3, \infty)$
 Range = $(-\infty, \infty)$
7. a.) $\log_3 9 = 2$
 b.) $8^{-3} = \frac{1}{512}$
8. a.) 4
 b.) $-\frac{5}{2}$ or -2.5
 c.) 64
 d.) 7
 e.) 5
 f.) $-\frac{3}{2}$ or -1.5
9. a.) $x = -1.167$
 b.) $x = 2$
 c.) $x = -1.403$
 d.) $x = 0.423$

10. a.) $x = 13$
 b.) $x = 4$ ($x = -4$ is an extraneous solution)
 c.) $x = -39$
 d.) $x = -5.632$
11. All of the equations have no solutions -
 a.) Variable cancels out leaving a false statement
 b.) After isolating base 2, will have to take a log of negative number
 c.) Solved equation and got $x = -6$ but it's an extraneous solution
12. \$318.77
13. 16% interest rate
14. about \$28,500
15. 30 months = 2.5 years
16. a.) about 5 years
 b.) 15.7 years
17. a.) $\text{pH} = 7.2$
 b.) $H = 2.5 \times 10^{-3} \text{M}$
18. a.) about 155 dB
 b.) about $1.58 \times 10^{-3} \text{ W/m}^2$
19. a.) Yes, it is a power function where $k = 6$ and $p = -8$
 b.) No, it is not a power function so $k = p = \text{N/A}$
20. $y = 10 \bullet x^{0.0711}$
21. volume = 84 cubic centimeters

22. a.) Domain: $(-\infty, \infty)$ b.) Domain: $(-\infty, -1] \cup [1, \infty)$
 Range: $(-\infty, 4)$ Range: $[-5, -1] \cup [1, \infty)$



23. 6 oz letter will cost \$8.64 and 9 oz letter will cost \$12.86 so together it will cost \$21.50