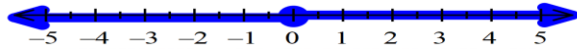
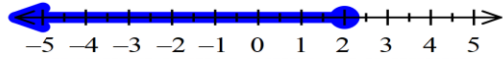


SM3 Unit 2 test review answers

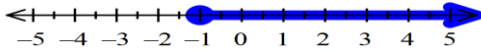
1. $(-\infty, \infty)$,



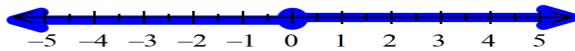
2. $(-\infty, 2]$,



3. $[-1, \infty)$,



4. $(-\infty, \infty)$,



5. Square root

Domain: $[-4, \infty)$

Positive: $[-4, 5)$

Range: $(-\infty, 3]$

Negative: $(5, \infty)$

x -intercept(s): $(5, 0)$

Maximums minimums: $(-4, 3)$

y -intercept: $(0, 1)$

Increasing: N/A

End Behavior:

Decreasing: $(-4, \infty)$

$\lim_{x \rightarrow -\infty} f(x) = DNE$

$\lim_{x \rightarrow \infty} f(x) = -\infty$

6. cubic

Domain: $(-\infty, \infty)$

Positive: $(1, \infty)$

Range: $(-\infty, \infty)$

Negative: $(-\infty, 1)$

x -intercept(s): $(1, 0)$

Maximums / minimums: none

y -intercept: $(0, -3\frac{1}{2})$

Increasing: $(-\infty, \infty)$

End Behavior:

Decreasing: N/A

$\lim_{x \rightarrow -\infty} f(x) = -\infty$

$\lim_{x \rightarrow \infty} f(x) = \infty$

7. absolute value

Domain: $(-\infty, \infty)$

Positive: $(-\infty, -6) \cup (-2, \infty)$

Range: $[-2, \infty)$

Negative: $(-6, -2)$

x -intercept(s): $(-6, 0), (-2, 0)$

Maximums / minimums: $(-4, -2)$

y -intercept: $(0, 2)$

Increasing: $(-4, \infty)$

End Behavior:

Decreasing: $(-\infty, -4)$

$\lim_{x \rightarrow -\infty} f(x) = \infty$

$\lim_{x \rightarrow \infty} f(x) = \infty$

8. B

9. A, B, D, E, F

10. C, F

11. B, F

12. A, C, D, F

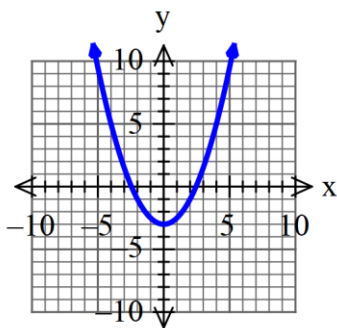
13. B, F

14. A, C, D

15. A, D, E

16. Quadratic, vertical dilation by a factor of $\frac{1}{2}$, translate down 3

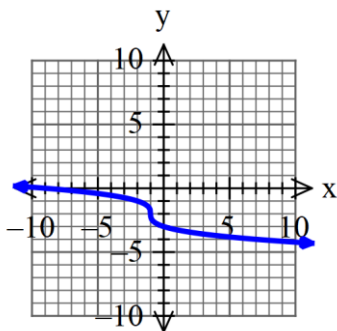
x	$\frac{1}{2}f(x) - 3$
-2	-1
-1	$-2\frac{1}{2}$
0	-3
1	$-2\frac{1}{2}$
2	-1



Domain: $(-\infty, \infty)$ Range: $[-3, \infty)$

17. Cube root, reflect over x-axis, translate left 1, down 2

$x - 1$	$-f(x) - 2$
-9	0
-2	-1
-1	-2
0	-3
7	-4



Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$

18. translate left 2, down 1

$$f(x) = (x + 2)^2 - 1$$

19. vertical stretch of 3, translate left 5, up 1

$$f(x) = 3\sqrt{x + 5} + 1$$

20. reflect over x-axis, vertical dilation of $\frac{1}{2}$, translate down 1

$$f(x) = -\frac{1}{2}|x| - 1$$

$$21. g(x) = \sqrt{-(x + 2)} + 5$$

$$22. g(x) = 3\sqrt[3]{x - 4} - 2$$

$$23. g(x) = \left(\frac{1}{3}(x - 6)\right)^2 - 7$$

$$24. g(x) = -x^3 + 4$$

$$25. \text{Domain: } [0, 11]$$

$$\text{Range: } [5, 9]$$

x-intercept(s): N/A

y-intercept: (0, 8)

Increasing Interval(s): (0, 1)

Decreasing Interval(s): (3, 4) \cup (6, 7) \cup (8, 9) \cup (10, 11)

Local Max: N/A

Local Min: (0, 8), (11, 5)

Positive Interval(s): [0, 11]

Negative Interval(s): N/A

"What does it mean in context?" answers may vary.