Foundational Review Test: Post-Review Version—Answer Key

Section 1: Linear Equations and Graphs

1. $m = -2$ x-intercept: $(1,\ 0)$ y-intercept: $(0,\ 2)$ **2.** 2 **3.** $y = -3$

4. $y = 7x - 4$ **5.** $y = \frac{3}{2}x - 3$ **6.** $y - 5 = \frac{-1}{2}(x - 3)$ or $y - 10 = \frac{-1}{2}(x - 3)$

7. $\frac{y_2 - y_1}{x_2 - x_1}$ **8.** $y + \frac{1}{3} = \frac{32}{5}(x + 9)$ or $y - \frac{1}{5} = \frac{32}{5}(x - 3)$

Section 2: Functions

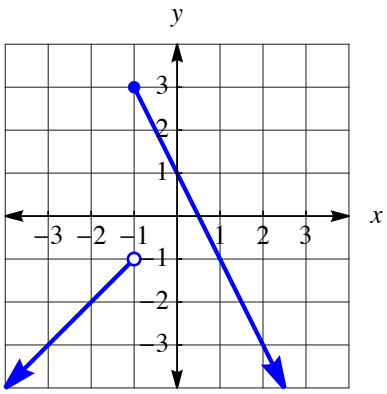
1. **17** **2.** **21** **3.** -2 **4.** **0 or 2** **5.** $h(r) = -2r - 7$

6. **a.** **i.** $[3, 9]$ **ii.** $[-7, 9]$ **b.** **i.** $(3, 5)$ **and** $(9, -7)$ **ii.** $(5, 9)$ **c.** **i.** $(9, -7)$ **ii.** $(5, 9)$
d. **i.** $[3, 8)$ **ii.** $(8, 9]$ **e.** **i.** $(5, 9]$ **ii.** $[3, 5)$

7. $p(x) = \frac{9}{5}x - \frac{3}{5}$ **8.** $D = [9/2, \infty)$ and $R = [0, \infty]$

Section 3: Piecewise Functions

1. -8 **2.** -5 **3.** (graphed below)



4. $f(x) = \begin{cases} 2x + 3 & x < -2 \\ \frac{x}{3} + \frac{8}{3} & -2 \le x < 1 \\ -2x + 4 & 1 \le x \le 4 \end{cases}$ **5.** -8

Section 4: Exponents and Radicals

1. w^{-5} **2.** $x^5 y^{-15}$ **3.** $2b^{-1/4}$ **4.** $16 y z^{26} \sqrt{y z}$

Section 5: Polynomials

1. 9 **2.** $-12h^4 + 3h^3 - 2h^2 + 8$ **3.** $-5q^8$ **4.** $12x^3 + 15x^2 + 3x$

5. $-35g^3 h^4 - 10g^4 h^2 + 15g^5 h$ **6.** $2c^2 p^{2w} q^{2x+3}$

Section 6: Factors and Divisibility (Challenge/Honors)

1. $-5b^{-6}$ **2.** $(x - 5)(x + 7)$ **3.** $(x + 19)(x - 1)$

4. $(x + 11)(x - 3)$ **5.** $(5x - 1)(x + 3)$ **6** $(3x - 11)(3x + 11)$

Section 7: Logarithms

1. **a.** 4 **b.** 8 **c.** $-1/2$ **d.** -8

2. **a.** 3 **b.** $3^{1/3}$

3. **a.** $1 + 2\log(x)$ **c.** $\frac{1}{3}\log_b(x) + 2\log_b(y) - 5\log_b(z)$

4. **a.** $\log\left((x + 5)^{1/2}\right)$ **c.** $\log_3\left(\frac{a^3 c}{b^{1/2}}\right)$