

Foundational Review Test: Pre-Review Version—Answer Key

Section 1: Linear Equations and Graphs

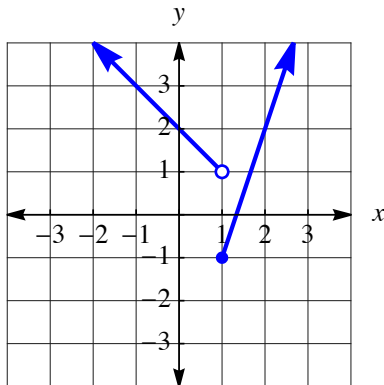
1. c. 2. $m=2$ x-intercept: (2, 0) y-intercept: (0, -4) 3. 16/9 4. $y = -3$ 5. (0, -3)
 6. $y = -5x + 4$ 7. $y = \frac{-3}{2}x + 3$ 8. $y + 5 = \frac{-15}{7}(x - 3)$ or $y - 10 = \frac{-15}{7}(x + 4)$ 9. x: (-9/a, 0) y: (0, 9/b)
 10. $\frac{\pi-3}{6}$ 11. $y + 1/2 = \frac{3}{76}(x + 7)$ or $y - \frac{1}{4} = \frac{3}{76}(x - 12)$ 12. $y = \frac{54}{13}x + \frac{125}{26}$

Section 2: Functions

1. a. 6 b. -1 c. 20 d. 41 2. a. 0 b. -1 c. 10 d. -18 3. a. -4 and 7 4. 1 5. $h(r) = 2r - 8$
 6. c. 7. $-\infty < x < \infty$ 8. a. i. $3 \leq x \leq 8$ ii. $-6 \leq y \leq 10$ b. i. (5, -6) ii. (3, -2) and (9, 10)
 c. i. (5, -6) ii. (9, 10) d. i. $7.5 < x \leq 9$ ii. $3 \leq x < 7.5$ e. i. $-2 \leq x \leq 5$ ii. $5 \leq x \leq 9$
 9. 8 10. -2 11. $g(x) = 5x - 6$ 12. $x \leq -3$ and $x \geq 3$
 10. $\frac{\pi-3}{6}$ 11. $y + 1/2 = \frac{3}{76}(x + 7)$ or $y - \frac{1}{4} = \frac{3}{76}(x - 12)$ 12. $y = \frac{54}{13}x + \frac{125}{26}$

Section 3: Piecewise Functions

1. 4 2. a. 4 b. 4 c. -5 d. 3 3. (graphed below)



4. $f(x) = \begin{cases} 2x + 3 & x < -2 \\ \frac{x}{3} + \frac{8}{3} & -2 \leq x < 1 \\ -2x + 4 & 1 \leq x \leq 4 \end{cases}$ 5. $h(5) = 125, h(8) = \text{Undefined}$

Section 4: Exponents and Radicals

1. w^{-2} 2. $x^{36}y^{12}$ 3. 12/7 4. 3/2 5. $2^{1/3}b^{-1/3}$ 6. $\frac{13}{5}w^{-19/5}$ 7. $8y^5z^{10}\sqrt{2yz}$

Section 5: Polynomials

1. d. 2. 12 3. $-5h^4 + 9h^3 + 2h^2 - 16$ 4. $-5h^4 + 5h^3 - 6h^2$ 5. $-2q^8$ 6. $6x^2 + 12x + 15$
 7. $-21g^5h - 27g^6h + 33g^7$ 8. $a = 8, b = -1/2$ 9. $abp^{w+y}q^{x+z}$ 10. a. $10g^2 - 6g + 22$
 b. $12g^2 - g + 8$ c. $-12g^2 + g - 8$ d. $-24g^2 + 2g - 16$ 11. $-5k^4 + 10k^3 - 15k^2$

Section 6: Factors and Divisibility (Challenge/Honors)

1. $-3b^5$ 2. $60p^5$ 3. $8x^2$ 4. $(x+5)(x-3)$ 5. $12r^4(3r^4 - 2r^3 + 7)$ 6. $(x-17)(x+1)$
 7. $(x+8)(x-5)$ 8. $x+5$ 9. $(3x-4)(x+3)$ 10. $(p+8q)(p-3q)$ 11. $-3r^2(r-5)(r+2)$
 12. $(a+3)(a-2b)$ 13. $(x-8)(x+8)$

Section 7: Logarithms

1. a. 3 b. 4 c. 2 d. -2 e. -2 f. 2 g. 0 h. Undefined
 2. a. 5 b. 9 c. 1/4 d. 10
 3. a. $2 + \log(x)$ b. $4 - \log_3(w)$ c. $\frac{1}{4}\log_2(x)$ d. $3\log_b(x) + 2\log_b(y) - 5\log_b(z)$

4. a. $\log(x^{1/3})$ b. $\log_2(xy^3)$ c. $\log_7\left(\frac{a^{1/3}}{b^{1/2}}\right)$ d. $\log_3\left(\frac{121x}{5^{1/2}}\right)$