

Fraction Basics & Exponent Laws

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|---------------------|------------------------|-------------------------|---------------------------|---------------------|----------------------|------------------|------------------|
| 1. $\frac{31}{35}$ | 2. $\frac{10}{9}$ | 3. $\frac{7}{22}$ | 4. $-\frac{7}{6}$ | 5. $\frac{4}{7}$ | 6. $\frac{20}{9}$ | 7. $\frac{9}{2}$ | 8. $\frac{1}{8}$ |
| 9. 256 | 10. x^3 | 11. $\frac{1}{16384}$ | 12. $\frac{1}{625}$ | 13. $\frac{1}{256}$ | 14. $\frac{64}{125}$ | 15. x^4 | 16. y^{11} |
| 17. $531,441s^{18}$ | 18. $\frac{1}{w^{10}}$ | 19. $\frac{16m^7}{n^3}$ | 20. $\frac{2b^{14}}{a^5}$ | | | | |

Function Notation & Definition

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|--------------|-------|-------|--------|-------------------|---------|------------------------|
| 1. Yes | 2. No | 3. No | 4. Yes | 5. Yes | 6. No | 7. Yes |
| 8. 4 | 9. 24 | 10. 6 | 11. 25 | 12. $\frac{3}{8}$ | 13. -78 | 14a. $C(100) = 21,000$ |
| 14b. $x=200$ | | | | | | |

Graphing Linear Functions

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|--|---|---|
| 1a. $m = \frac{4}{3}$, <i>neither</i> | 1b. $m = -\frac{4}{3}$, <i>perpendicular</i> | 1c. $m = -\frac{3}{4}$, <i>neither</i> |
| 2a. $m = \frac{5}{4}$ $y - \text{int}: -1$ | 2b. $m = -3$ $y - \text{int}: 4$ | 2c. $m = \frac{1}{2}$ $y - \text{int}: 0$ |
| 3a. $y = -2x + 6, m = -2, y - \text{int}: 6$ | 3b. $y = \frac{8}{5}x - 4, m = \frac{8}{5}, y - \text{int}: -4$ | 3c. $y = -\frac{4}{3}x - 5, m = -\frac{4}{3}, y - \text{int}: -5$ |

Expanding & Factoring Quadratic Expressions

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|-----------------------|------------------------|---------------------|----------------------|----------------------|
| 1. $x^2 - 100$ | 2. $3x^2 + 11x + 10$ | 3. $x^2 - 14x + 49$ | 4. $x^2 + 2x - 48$ | 5. $-6x^2 + 16x$ |
| 6. $6x^2 + 2x - 28$ | 7. $5x^2 + 40x$ | 8. $9x^2 - 1$ | 9. $16x^2 - 8x + 1$ | |
| 10. $(x - 12)(x + 2)$ | 11. $(2x + 3)(2x - 3)$ | 12. $5x(3x - 1)$ | 13. $(x - 6)(x - 6)$ | |
| 14. $3(x + 4)(x + 2)$ | 15. $(3x + 1)(3x + 1)$ | 16. Not Factorable | 17. $8x(3x - 2)$ | 18. $(x - 4)(x + 3)$ |

Solving Quadratic Equations

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|----------------------|---|--------------------------------|-------------------------------------|
| 1. $x = -5$ $x = -1$ | 2. $x = 0$ $x = -6$ | 3. $x = -2$ $x = -10$ | 4. $x = \frac{-7 \pm \sqrt{97}}{2}$ |
| 5. $x = 2$ $x = -2$ | 6. $x = -\frac{3}{2} \pm \frac{\sqrt{7}}{2}i$ | 7. $x = -\frac{1}{2}$ $x = -1$ | 8. $x = -\frac{3}{2}$ $x = 4$ |
| 9. $x = -5$ $x = 2$ | 10. $x = 3$ | 11. $x = \pm 6i$ | 12. $x = 3 \pm 4i$ |

Graphing Quadratic Equations

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| 1. $x - \text{intercepts}: x = 1$ $x = -3$ $y - \text{intercept}: (0, -3)$ $\text{vertex}: (-1, -4)$ |
| 2. $x - \text{intercepts}: x = 3$ $x = -2$ $y - \text{intercept}: (0, 12)$ $\text{vertex}: (.5, 12.5)$ |
| 3. $x - \text{intercepts}: x = 6$ $y - \text{intercept}: (0, 18)$ $\text{vertex}: (6, 0)$ |

Classifying Polynomials & Degree of Polynomials

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|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| 1. L | 2. E | 3. 3 | 4. 4 | 5. L | 6. Q | 7. I | 8. E | 9. 5 | 10. I | 11. 4 | 12. E | 13. L |
| 14. I | 15. Q | 16. 3 | 17. 5 | 18. E | 19. I | 20. Q | | | | | | |

Adding, Subtracting, and Multiplying Polynomials

1. $3x^4 - 3x^3 - x + 11$

4. $5x^2 - 2x - 7$

7. $-4x^3 + 14x^2 - 24$

10. $3x^5 - 3x^4 + 2x^3 - 4x^2 + 5x$

2. $3x^3 + x^2 - 2x - 9$

5. $3x^4 - 3x^3 + 4x^2 - 7x - 1$

8. $10x^3 - 28x^2 + 10x + 12$

3. $3x^4 - 3x^3 + 7x^2 - 8x + 2$

6. $-3x^3 - x^2 + 6x + 1$

9. $6x^4 - 10x^3 - 12x^2 + 6x + 20$

Dividing Polynomials

1. $x^2 + 5x - 3 \ r \ 0$

2. $x^2 - 3x - 10 \ r \ 0$

3. $x^3 + x + 3 \ r \ 0$

4. $x^3 - 7x^2 + 14x - 8 \ r \ 0$

Logarithms

1. $x = 3$

2. $x = 1$

3. $x = \frac{1}{3}$

4. $x = 2$

5. $x = -1$

6. $x = .849$

7. $x = -.122$

8. $x = -\frac{1}{3}$

9. $x = -3.15$

10. $t = 32.03 \text{ years}$

Transformations

1a. reflection over x-axis, vertical dilation(stretch) $\times 3$, vertical translation down 1

b. vertical dilation(stretch) $\times 3$, horizontal translation left 1

2a. $g(x) = 3x^2 - 3$

b. $g(x) = \frac{1}{2(x+3)}$

c. $g(x) = \left| \frac{1}{2}(x-1) \right| + 3$

d. $g(x) = -\frac{1}{3}\sqrt{x-2} - 3$

3a. reflection over x-axis, horizontal translation left 3

b. vertical dilation(shrink) $\times \frac{1}{2}$, vertical translation up 3

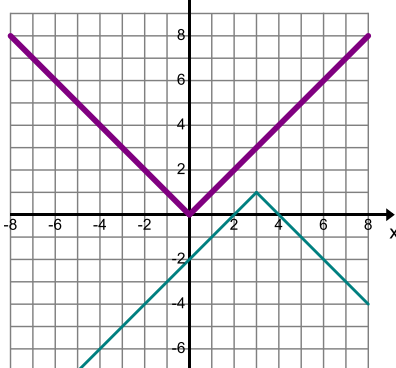
4a. $g(x) = -f(x+2)$

b. $g(x) = f\left(\frac{1}{2}x\right) - 1$

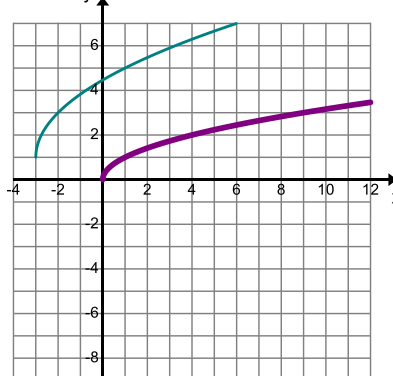
c. $g(x) = f(x+3) + 4$

d. $g(x) = -f(x+3) - 4$

5a.



b.



Trigonometry

1a. $m < A = 45^\circ$, $\overline{BC} = 4.95$

b. $\overline{DE} = 3.73$, $\overline{FD} = 8.83$

c. $m < K = 30^\circ$, $m < M = 60^\circ$

2a. 28.28 ft

b. 70.53°

3a. $x = 24.49'$

b. $x = 22.65'$

c. $x = 3.98$