

1. Factoring Out Monomial Terms

- 1. $xy(2x^2 + 7y)$
- 2. $6a^2b^3(7a + 4b^2)$
- 3. $4\pi r^2h(6r^2 - 5h^3)$
- 4. $5b^{10}c^6d^3(6bd + 3bc - 7cd)$
- 5. $9x^3y^2z^6(4x^2y^3 - 3yz^4 + 2x^3z)$
- 6. $ab^2(6a^3 - 7b^2 + 7a)$
- 7. $9p^5q(3p + 5q - 6p^3)$
- 8. $4j^3k^2(2j^7 + 5k^2)$
- 9. $7x^2y^3(3x^2 + 5y^5)$
- 10. $21d^2h^3(2d + 3h^2)$
- 11. $6\pi r^2(4h^2 + 3h + 9)$
- 12. $3mn(5n^3 - 11m^2)$
- 13. $a^2b^3c(2a^3b^2 - 6ac^5 + 7b^3c^2)$
- 14. $5st^5(3s - 5t^2 + 11)$
- 15. $8uv(u^2 - 4v^3 + 10)$
- 16. $2x^2y^2(3x^2y + 4y^3 - x + 3)$

2. Laws of Exponents

- 1. x^7
- 2. y^5
- 3. a^3
- 4. p^5
- 5. x^9
- 6. y^{10}
- 7. z^{12}
- 8. b^{27}
- 9. z^6x^{12}
- 10. 1
- 11. a^6
- 12. x^6
- 13. 2
- 14. $72x^5$
- 15. $20x^3$
- 16. $729x^8$

3. Function Notation

- 1. 53
- 2. -108
- 3. $5x^2 + 10xh + 5h^2 + 3x + 3h$
- 9. $6x^2 + 15x$
- 10. $80x^2 + 180x + 105$
- 11. $20x^2 + 20x + 24$

- **4.** $21x^2 + 42xh + 21h^2 - 20x - 20h$
- **5.** $21x^3 + 44x^2 + 15x$
- **6.** $6x^3e^x + 7e^x$
- **7.** 572
- **8.** $18x^2 + 15x$
- **12.** 944784
- **13.** 2560
- **14.** $e^{(3x^2 + 2x + 6)}$
- **15.** $3e^{2x} + 2e^x + 6$

4. Properties of Lines

- **1.** $y - 3 = 3(x + 4)$
- **2.** $y = 2x + 11$
- **3.** $y - 3 = -6(x - 8)$
- **4.** $y = -5x + 36$
- **5.** $y = -x +$
- **6.** $y = -x -$
- **7.** $y - 4 = 2(x + 1)$ or $y + 4 = 2(x + 5)$
- **8.** $y - 2 = 3(x - 5)$ or $y - 11 = 3(x - 8)$
- **9.** $y + 1 = -2(x - 3)$
- **10.** $y = -\frac{1}{2}x +$
- **11.**
- **12.** $y = -\frac{1}{2}x - 10$
- **13.**
- **14.**
- **15.**
- **16.**

5. Multiplying Binomials

- **1.** $x^2 - 3x - 18$
- **2.** $a^5 - 4a^3 + a^2 - 4$
- **3.** $b^3 + 5b^2 - 3b - 15$
- **4.** $z^5 - z^3 + z^2 - 1$
- **5.** $p^{21} - 2p^{20} + p^{19}$
- **9.** $x^3 + 2x^2 - 45x - 126$
- **10.** $x^4 - x^3 + x^2 - 3x - 6$
- **11.** $m^{196} - m^{194}$
- **12.** $36n^7 + 36n^6 + 9n^5$
- **13.** $900j^{102} + 100j^{100} - 9j^3 - j$

- **6.** $q^7 + 3q^4 + 4q^3 + 12$
- **7.** $30h^5 - 10h^4 + 6h - 2$
- **8.** $d^{11} - d^{10} + d^5 - d^4$
- **14.** $2\pi^2k^6 + 11\pi k^5 + 15k^4$
- **15.** $2c^2x^2 + 2d^3xy + c^4dx + c^2d^4y$
- **16.** $f^4y^4 + f^3gxy^3 + fg^2x^2y + g^3x^3$

6. Special Triangles

- **1.** $\alpha = 30^\circ, \beta = 60^\circ$
- **2.**
- **3.** 0.25 inches
- **4.** cm
- **5.** Both a and $b = 5$.
- **6.** 13 each
- **7.** mm
- **8.** cm^2
- **9.** units²
- **10.**
- **11.** $\alpha = 30^\circ, \beta = 60^\circ$
- **12.** 50
- **13.** 30
- **14.**
- **15.**
- **16.**, $y = 2b$

7. Simplifying and Combining Radicals

- **1.**
- **2.**
- **3.**
- **4.**
- **5.**
- **6.**
- **9.** 30
- **10.** 40
- **11.** 70
- **12.**
- **13.**
- **14.**

- 7.
- 8. 99
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- 15.
-
- 16.

8. Similar Triangles

- 1. $x =$
- 2. $x = 16.5$
- 3. $x = 11.2$
-
- 4. $x =$
-
- 5. $x =$
-
- 6. $x =$
- 7. $k = 2x$
-
- 8. $h =$
- 9. $b =$
- 10. $h =$
- 11. 42 feet
- 12. 11.25 meters
- 13. 3.75 feet
- 14. 8.4 inches
-
- 15.
- 16. $\Delta ABC, \Delta APB, \Delta CPB$

9. Factoring Standard Forms

- 1. $(x - 6)^2$
- 2. $(z - 3)^2$
- 3. $(3a + 4)^2$
- 4. $(4x + 5y)^2$
- 5. $(x + y - 2)^2$
- 6. $4(a - b - 1)^2$
- 7. $(b - 4)(b + 4)$
- 8. $7(x + 1)(x - 1)(x^2 + 1)$
- 9. $(2x - 1)(2x + 1)$
- 10. $-4ab$
- 11. $(s^3 - t^3)(s^3 + t^3)$
- 12. $(x + 1)(x^2 - x + 1)$
- 13. $(a - b)(a^2 + ab + b^2)$
- 14. $(2p + 3q)(4p^2 - 6pq + 9q^2)$

10. Inverses

- 1. $f^{-1}(x) =$
- 2. $f^{-1}(x) =$
- 3. $f^{-1}(x) =$
- 4. $f^{-1}(x) =$
- 5. $f^{-1}(x) = 5x + 4$
- 6. $f^{-1}(x) = 11x - 10$
- 7. $f^{-1}(x) = (x - 8)$
- 8. $f^{-1}(x) =$
- 9. $f^{-1}(x) = \log_3 x$
- 10. $f^{-1}(x) = 10^x$
- 11. $f^{-1}(x) =$
- 12. $f^{-1}(x) =$
- 13. $f^{-1}(x) =$
- 14. $f^{-1}(x) =$
- 15. $f^{-1}(x) =$
- 16. $f^{-1}(x) =$

11. Algebraic Fractions

- 1.
- 2.
- 3. $x + 3$
- 4.
- 5. $-(x + 5)$
- 6.
- 7. $x = 1, -$
- 8. $-$
- 9. $x = -5$
- 10. $x =$
- 11.
- 12.
- 13.
- 14.
- 15.

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16.

12. Solving Quadratics

- 1. $x = 0,$ • 9. $x =$
- 2. $x = - ,$ • 10. $x =$
- 3. $x = -3, 4$ • 11. $x = 4$
- 4. $x = 1, -$ • 12. $x = 0$
- 5. $y = -5, 1$ • 13. $x =$
- 6. $x = 7$ • 14. $x = \pm l$
- 7. $x = 2, 8$ • 15. $x =$
- 8. $y =$ • 16. $x =$

13. Inequalities

- 1. all real numbers • 9. no solution
- 2. $-4 < x < 10$ • 10. $x \leq -5$ and $x \geq -1$
- 3. $-1 < x < 7$ •
- 4. $x \leq -2$ and $x \geq 1$
- 5. $x < -3, x > 2$
- 6. $-3 \leq x \leq 4$
- 7. $< x <$ • 11.
- 8. $2 < x < 3, x > 4$

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12.

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13.

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14.

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15.

16.

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