

Write an equation of the line that passes through the given point and has the given slope. (p. 98)

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| 1. (3, 1), $m = 4$ | 2. (4, 6), $m = 7$ | 3. (-3, 2), $m = -8$ |
| 4. (1, -5), $m = 9$ | 5. (-5, 8), $m = \frac{4}{5}$ | 6. (2, -10), $m = -\frac{3}{4}$ |

Solve the equation. Check your solution(s).

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| 7. $-2x + 7 = 15$ (p. 18) | 8. $ 4x - 6 = 14$ (p. 51) | 9. $x^2 - 9x + 14 = 0$ (p. 252) |
| 10. $4x^2 - 6x + 9 = 0$ (p. 292) | 11. $x^3 + 3x^2 - 10x = 0$ (p. 353) | 12. $\sqrt{8x + 1} = 7$ (p. 452) |

Graph the equation or inequality in a coordinate plane.

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| 13. $y = 3x - 5$ (p. 89) | 14. $y = - x + 4 + 3$ (p. 123) | 15. $y < -2x + 5$ (p. 132) |
| 16. $y = x^2 - 2x - 4$ (p. 236) | 17. $y = 2(x - 6)^2 - 5$ (p. 245) | 18. $y > x^2 + 2x + 1$ (p. 300) |
| 19. $y = x^3 - 2$ (p. 337) | 20. $y = 3(x + 2)(x - 1)^2$ (p. 387) | 21. $y = -\sqrt{x - 2} + 4$ (p. 446) |

Solve the system of linear equations using any method.

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| 22. $2x + 5y = 1$ (p. 160) | 23. $3x - y = -9$ (p. 160) | 24. $2x + 3y = 47$ (p. 178) |
| $3x - 2y = 30$ | $4x + 3y = 14$ | $7x - 8y = -2$ |
| | | $2x - y + 3z = -19$ |

Write the expression as a complex number in standard form. (p. 275)

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| 25. $(4 - 2i) + (5 + i)$ | 26. $(3 + 4i) - (7 + 2i)$ | 27. $(4 - 2i)(6 + 5i)$ |
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Write the quadratic function in vertex form by completing the square. (p. 284)

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| 28. $y = x^2 + 6x + 16$ | 29. $y = -x^2 + 12x - 46$ | 30. $y = 2x^2 - 4x + 7$ |
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Simplify the expression. Assume all variables are positive.

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| 31. $(2x^3y^2)^3$ (p. 330) | 32. $(x^8)^{-3/4}$ (p. 420) | 33. $\frac{x^3y^{-4}}{x^{-4}y^{-5}}$ (p. 330) | 34. $\left(\frac{x^2y^{1/3}}{x^{1/4}y}\right)^2$ (p. 420) |
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Perform the indicated operation.

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| 35. $(x^2 + 11x - 9) + (4x^2 - 5x - 7)$ (p. 346) | 36. $(x^3 + 3x - 10) - (2x^3 + 3x^2 + 8x)$ (p. 346) |
| 37. $(2x - 5)(x^2 + 4x - 7)$ (p. 346) | 38. $(x^3 - 10x^2 + 33x - 28) \div (x - 5)$ (p. 362) |

Factor the polynomial completely. (p. 353)

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| 39. $x^4 - 3x^2 - 40$ | 40. $x^3 - 125$ | 41. $x^3 - 6x^2 - 9x + 54$ |
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Let $f(x) = 2x - 6$ and $g(x) = 5x + 1$. Perform the indicated operation and state the domain. (p. 428)

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| 42. $f(x) + g(x)$ | 43. $f(x) \cdot g(x)$ | 44. $f(g(x))$ | 45. $g(f(x))$ |
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Find the inverse of the function. (p. 437)

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| 46. $f(x) = 4x + 6$ | 47. $f(x) = \frac{3}{7}x + 7$ | 48. $f(x) = \frac{1}{3}x - \frac{2}{3}$ |
| 49. $f(x) = \frac{x^3 - 5}{6}$ | 50. $f(x) = \sqrt[3]{\frac{2x + 7}{3}}$ | 51. $f(x) = -\frac{8}{9}x^5 + 2$ |