

Math 8 Enriched
Ch 3 Algebra Review

Name _____

Date _____

1. Twelve more than a number is -12 . Find the number.
2. -200 is the difference between a number and 500 . What is the number?
3. Three times a number, decreased by 14 , is the same as 22 decreased by five times the number. Find the number.
4. One number is 9 less than another. When 4 times the larger is subtracted from 12 times the smaller, the difference is 36 . Find each number.
5. The sum of two numbers is 68 . Six times the smaller number is 8 less than half the larger number. What are the numbers?
6. Three numbers have the sum 81 . The second is twice the first, and the third number is 6 more than the second. Find the three numbers.
7. Find four consecutive integers such that the sum of the first and fourth is -35 .
8. Find two consecutive odd integers whose sum is 72 .
9. Find two consecutive even integers such that twice the larger is 14 less than 5 times the smaller.
10. If the sum of three consecutive even integers is decreased by 80 , the result is equal to half the middle integer. Find the three even integers.

11. There are 3 more dimes than nickels in a sack of coins. The value of the coins is \$8.85. How many nickels are there?

12. A piggy bank contains 10 times as many pennies as nickels. The total value of the coins is \$1.35. How many coins of each type are there?

Solve.

13. $b(25b + 1) = 0$

14. $(3m + 5)(3m - 5) = 0$

15. $g(g - 5)(g + 8) = 0$

16. $y - 5y^2 = 0$

17. $0 = x^2 + 10x + 21$

18. $0 = y^2 - 12y + 32$

19. $0 = r^2 - 4r - 96$

20. $3d^3 + 33d^2 + 72d = 0$

21. $d^3 = 25d^2 + 54d$

22. $0 = a^4 - 26a^2 + 25$

Solve for the indicated variable.

23. $E = Ir + IR$; for I

24. $S - Sr = r$; for S

25. $C = \frac{10-r}{r}$; for r

26. $p^2 - 5pw + 4w^2 = 0$; for w

Solve.

27. $8d + 5 - 3d = 2 + 5d + 3$

28. $5w + 2 - 8w = 5 - 3w + 1$

29. $-5(6 - r) = 3(9r - 2)$

30. $\frac{3}{5}(25x + 35) = \frac{1}{3}(30 + 45x)$

31. $\frac{3}{10}y = 1 + \frac{1}{3}y$

32. $0.02(0.5c + 0.3) = 0.03c - 0.07(0.3 - 0.1c)$

33. $5 + 2[3(2w - 5) - (-4w)] = -3[4 - 5(w - 1)] + 2w$

$$34. \quad (7a - 1)(a + 5) = 7a(a + 5) - 2$$

$$35. \quad (3x + 5)(2x - 7) + 2x^2 = (4x + 1)(2x - 5)$$

$$36. \quad 2y^2 - 9y - 4 = (y - 6)(2y + 5)$$

$$37. \quad 2p(3p - 1) = 6p^2 + 5p - 4$$

$$38. \quad (w + 1)(w - 4) = w^2 + 9w + 17$$

$$39. \quad 8 + 3(4n - 1) + n^2 + (2 - n)(n + 1) = 6n + 42$$

$$40. \quad 2(5a - 3a^2) + (3a - 1)(2a + 3) = 8a + 12$$

Factor.

41. $g^2 + 12g + 35$

42. $y^2 + 13y + 30$

43. $k^2 + 10k + 28$

44. $24 + 25x + x^2$

45. $p^6 + 27p^3 - 90$

46. $k^4 + 9k^2 + 8$

47. $n^2 - 15n + 73$

48. $w^2 + 16w - 132$

49. $n^2 - 74n + 144$

50. $w^6 + 16w^3 + 55$

51. $78 - 7w - w^2$

52. $-4p^2 + 25q^2$

53. $196c^2 - 225$

54. $36w^2x^2 - 1$

55. $225x^2 - y^2$

56. $4n^4 - (n - 1)^4$

Answer List

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|------------------------|-----------------------------|-----------------------|
| 1. -24 | 2. 300 | 3. $\frac{9}{2}$ |
| 4. 0, -9 | 5. 4, 64 | 6. 15, 30, 36 |
| 7. -19, -18, -17, -16 | 8. 35, 37 | 9. 6, 8 |
| 10. 30, 32, 34 | 11. 57 | 12. 9n, 90p |
| 13. $0, -\frac{1}{25}$ | 14. $\pm\frac{5}{3}$ | 15. 0, 5, -8 |
| 16. $0, \frac{1}{5}$ | 17. -3, -7 | 18. 8, 4 |
| 19. 12, -8 | 20. -8, -3, 0 | 21. 27, -2, 0 |
| 22. $\pm 1, \pm 5$ | 23. $\frac{E}{r+R}$ | 24. $\frac{r}{1-r}$ |
| 25. $\frac{10}{C+1}$ | 26. $p, \frac{p}{4}$ | 27. $\mathbb{R}$ |
| 28. $\emptyset$ | 29. $-\frac{12}{11}$ | 30. $\emptyset$ |
| 31. -30 | 32. 1 | 33. $-\frac{2}{5}$ |
| 34. -3 | 35. $\frac{30}{7}$ | 36. 13 |
| 37. $\frac{4}{7}$ | 38. $-\frac{7}{4}$ | 39. 5 |
| 40. $\frac{5}{3}$ | 41. $(g+7)(g+5)$ | 42. $(y+10)(y+3)$ |
| 43. prime | 44. $(24+x)(1+x)$ | 45. $(p^3+30)(p^3-3)$ |
| 46. $(k^2+8)(k^2+1)$ | 47. prime | 48. $(w+22)(w-6)$ |
| 49. $(n-72)(n-2)$ | 50. $(w^3+5)(w^3+11)$ | 51. $(13+w)(6-w)$ |
| 52. $(5q-2p)(5q+2p)$ | 53. $(14c-15)(14c+15)$ | 54. $(6wx-1)(6wx+1)$ |
| 55. $(15x-y)(15x+y)$ | 56. $(n^2+2n-1)(3n^2-2n+1)$ | |

Catalog List

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|----------------|----------------|----------------|
| 1. ALG HA 19 | 2. ALG HA 45 | 3. ALG HB 16 |
| 4. ALG HB 31 | 5. ALG HB 47 | 6. ALG HB 67 |
| 7. ALG HC 18 | 8. ALG HC 36 | 9. ALG HC 46 |
| 10. ALG HC 52 | 11. ALG HD 4 | 12. ALG HD 14 |
| 13. ALG JA 51 | 14. ALG JA 72 | 15. ALG JA 74 |
| 16. ALG JB 16 | 17. ALG JB 51 | 18. ALG JB 72 |
| 19. ALG JB 116 | 20. ALG JD 35 | 21. ALG JD 56 |
| 22. ALG JD 65 | 23. ALG JE 2 | 24. ALG JE 4 |
| 25. ALG JE 9 | 26. ALG JE 36 | 27. ALG GF 73 |
| 28. ALG GF 81 | 29. ALG GF 100 | 30. ALG GF 140 |
| 31. ALG GF 151 | 32. ALG GF 199 | 33. ALG GG 36 |
| 34. ALG GG 59 | 35. ALG GG 73 | 36. ALG GG 64 |
| 37. ALG GG 56 | 38. ALG GG 51 | 39. ALG GG 78 |
| 40. ALG GG 80 | 41. ALG ID 11 | 42. ALG ID 27 |
| 43. ALG ID 43 | 44. ALG ID 91 | 45. ALG IF 130 |
| 46. ALG ID 125 | 47. ALG II 66 | 48. ALG II 87 |
| 49. ALG II 97 | 50. ALG II 155 | 51. ALG II 45 |
| 52. ALG IJ 66 | 53. ALG IJ 63 | 54. ALG IJ 111 |
| 55. ALG IJ 78 | 56. ALG IJ 181 | |