

GEOMETRY HONORS

Simplify each expression.

1) $-5(x + 4) + x$

2) $6b - 3(4 - 6b)$

3) $-5(x - 4) - 1$

4) $7(1 - 5p) + p$

Solve each equation.

5) $|k + 2| = 3$

6) $|-4b| = 36$

Find the distance between each pair of points.

7) $(-2, -5), (4, 0)$

8) $(-8, 8), (8, 6)$

9) $(-2, 0), (1, 5)$

Divide.

10) $(x^2 - 14x + 30) \div (x - 4)$

11) $(8x^2 - 77x + 49) \div (x - 9)$

Simplify.

$$12) \frac{5}{5\sqrt{5} - \sqrt{2}}$$

$$13) \frac{2}{3 - \sqrt{2}}$$

$$14) \frac{4}{-1 + \sqrt{3}}$$

$$15) \frac{2}{2 - \sqrt{3}}$$

Simplify each expression.

$$16) \frac{r-1}{r-6} \div \frac{1}{6r-36}$$

$$17) \frac{1}{x-2} \div \frac{x+6}{x^2+8x+12}$$

$$18) \frac{n^2+2n-15}{n-3} \div \frac{3n+15}{3}$$

$$19) \frac{1}{x-8} \div \frac{x+7}{x^2-18x+80}$$

Solve each equation.

$$20) -100 = -5(4 - 2a)$$

$$21) 87 = -4x + 5(-x + 3)$$

$$22) 2(6x + 7) + 6 = 104$$

$$23) -108 = -3(1 - 5b)$$

Solve each proportion.

$$24) -\frac{3}{5} = \frac{x+7}{x+6}$$

$$25) \frac{n-4}{3} = \frac{n-1}{2}$$

Solve each equation for the indicated variable.

$$26) g = b + a + c, \text{ for } a$$

$$27) a - m = n - p, \text{ for } a$$

$$28) z = y - \frac{m}{x}, \text{ for } x$$

$$29) xc = d + r, \text{ for } x$$

Solve each equation by factoring.

$$30) r^2 + 18 = -9r$$

$$31) v^2 + 32 = -12v$$

$$32) a^2 + 8a = -7$$

Solve each equation with the quadratic formula.

$$33) 2p^2 - 9p = -8$$

$$34) 3r^2 - r = 13$$

35) $10b^2 + 8b = 15$

36) $5x^2 = 9 - 4x$

Solve each equation. Remember to check for extraneous solutions.

37) $2 + \sqrt{45 - r} = 8$

38) $5 + \sqrt{\frac{b}{10}} = 7$

Simplify. Your answer should contain only positive exponents.

39) $2x^3 \cdot 3x^{-4}y^{-1}$

40) $3y^{-2} \cdot 2x^3 \cdot y^2$

41) $3x^0y^4 \cdot x^2y^3$

42) $4m^0n^3 \cdot 2m^{-3}n^{-3}$

Factor each completely.

43) $25x^2 + 95x + 90$

44) $5v^2 + 4v - 1$

45) $x^2 + 3x + 2$

46) $v^2 + 7v$

47) $a^2 + 9a + 8$

48) $3n^2 + 15n$

Solve each system by graphing.

49) $y = \frac{1}{3}x - 2$
 $y = 2x + 3$

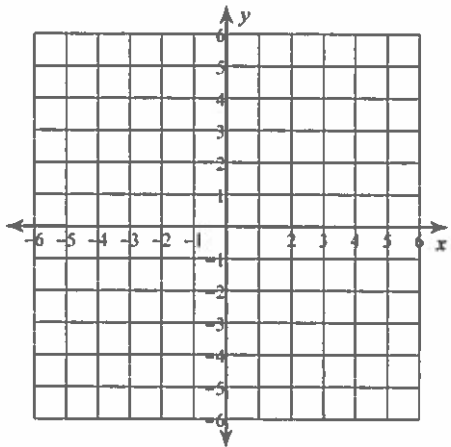
50) $y = \frac{5}{4}x - 2$
 $y = \frac{5}{4}x + 1$

51) $x = -3$
 $y = \frac{1}{3}x - 3$

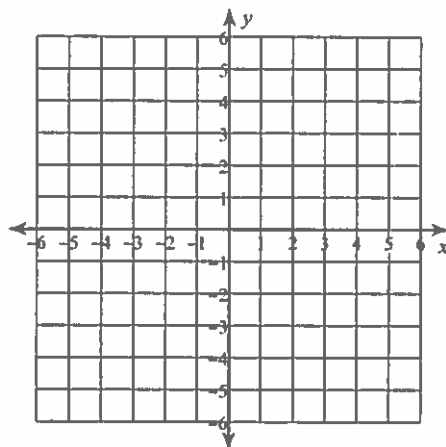
52) $y = \frac{5}{4}x - 1$
 $y = \frac{1}{4}x + 3$

Sketch the graph of each linear inequality.

53) $y \leq \frac{7}{4}x - 3$



54) $y < -\frac{9}{5}x - 5$



Find the midpoint of the line segment with the given endpoints.

55) $(2, -9), (6, -9)$

56) $(1, -9), (-5, -10)$

Find each product.

57) $(2x + 4)(5x - 5)$

58) $(8x + 2)(3x + 2)$

59) $(8x - 8)(8x + 3)$

60) $(7b + 2)(5b + 7)$

Simplify each expression.

61) $(6x^2 + 2x^3 + 4x) - (8x - 7x^3 + 3x^2)$

62) $(a^3 - 6a^4 + a^2) + (2a^3 + 4a^2 - 6a^4)$

63) $(7n^4 - 6n^2 - 5n) + (8n - 6n^4 + 8n^2)$

64) $(3m^3 - m^2 + 4) + (7m^2 + 2m^3 - 5)$

Find each product.

65) $(v + 4)(v + 8)$

66) $(2m - 6)(m + 6)$

67) $(5x - 8)(6x - 2)$

68) $(2p - 7)(5p + 1)$

Simplify.

69) $-\sqrt{54} - \sqrt{24} + 3\sqrt{54}$

70) $-\sqrt{20} - \sqrt{45} - 3\sqrt{6}$

71) $3\sqrt{54} - 3\sqrt{45} - \sqrt{20}$

72) $(-\sqrt{2} - 5\sqrt{5})(-3\sqrt{4} + \sqrt{5})$

73) $(-2 - 2\sqrt{3})(3 + \sqrt{3})$

74) $(4 + \sqrt{5})(1 + \sqrt{5})$

75) $(2\sqrt{2} + \sqrt{5})(\sqrt{2} + \sqrt{4})$

Write each number in scientific notation.

76) 0.0047

77) 0.975

78) 3

Solve each system by elimination.

$$\begin{aligned} 79) \quad & 7x + 12y = 9 \\ & -10x - 6y = -24 \end{aligned}$$

$$\begin{aligned} 80) \quad & 5x + 4y = 4 \\ & -15x - 5y = -5 \end{aligned}$$

Solve each system by substitution.

$$\begin{aligned} 81) \quad & x + 5y = 5 \\ & -3x - 15y = -6 \end{aligned}$$

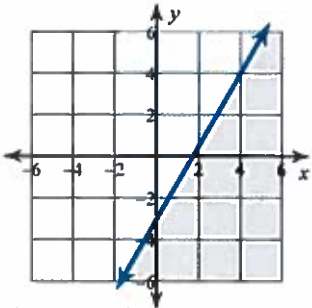
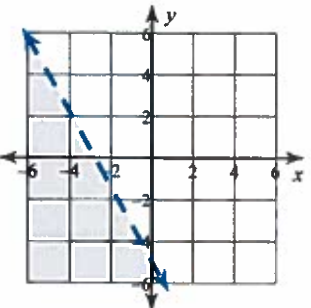
$$\begin{aligned} 82) \quad & x - 2y = -14 \\ & -6x - 6y = 12 \end{aligned}$$

83) The school that Asanji goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 10 adult tickets and 14 child tickets for a total of \$204. The school took in \$174 on the second day by selling 8 adult tickets and 13 child tickets. What is the price each of one adult ticket and one child ticket?

84) The state fair is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 5 vans and 2 buses with 117 students. High School B rented and filled 14 vans and 15 buses with 572 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

85) Willie and Rob are selling wrapping paper for a school fundraiser. Customers can buy rolls of plain wrapping paper and rolls of holiday wrapping paper. Willie sold 7 rolls of plain wrapping paper and 6 rolls of holiday wrapping paper for a total of \$108. Rob sold 11 rolls of plain wrapping paper and 3 rolls of holiday wrapping paper for a total of \$99. Find the cost each of one roll of plain wrapping paper and one roll of holiday wrapping paper.

Answers to GEOMETRY HONORS (ID: 1)

- 1) $-4x - 20$ 2) $24b - 12$ 3) $-5x + 19$ 4) $7 - 34p$
 5) $\{1, -5\}$ 6) $\{-9, 9\}$ 7) $\sqrt{61}$ 8) $2\sqrt{65}$
 9) $\sqrt{34}$ 10) $x - 10 - \frac{10}{x-4}$ 11) $8x - 5 + \frac{4}{x-9}$ 12) $\frac{25\sqrt{5} + 5\sqrt{2}}{123}$
 13) $\frac{6 + 2\sqrt{2}}{7}$ 14) $2 + 2\sqrt{3}$ 15) $4 + 2\sqrt{3}$ 16) $6(r - 1)$
 17) $\frac{x+2}{x-2}$ 18) 1 19) $\frac{x-10}{x+7}$ 20) $\{-8\}$
 21) $\{-8\}$ 22) $\{7\}$ 23) $\{-7\}$ 24) $\{-6.63\}$
 25) $\{-5\}$ 26) $a = g - b - c$ 27) $a = m + n - p$ 28) $x = \frac{m}{-z + y}$
 29) $x = \frac{d+r}{c}$ 30) $\{-6, -3\}$ 31) $\{-4, -8\}$ 32) $\{-7, -1\}$
 33) $\left\{\frac{9 + \sqrt{17}}{4}, \frac{9 - \sqrt{17}}{4}\right\}$ 34) $\left\{\frac{1 + \sqrt{157}}{6}, \frac{1 - \sqrt{157}}{6}\right\}$ 35) $\left\{\frac{-4 + \sqrt{166}}{10}, \frac{-4 - \sqrt{166}}{10}\right\}$
 36) $\left\{1, -1\frac{4}{5}\right\}$ 37) $\{9\}$ 38) $\{40\}$ 39) $\frac{6}{xy}$
 40) $6x^3$ 41) $3y^7x^2$ 42) $\frac{8}{m^3}$ 43) $5(5x + 9)(x + 2)$
 44) $(5v - 1)(v + 1)$ 45) $(x + 1)(x + 2)$ 46) $v(v + 7)$ 47) $(a + 1)(a + 8)$
 48) $3n(n + 5)$ 49) $(-3, -3)$ 50) No solution 51) $(-3, -4)$
 52) $(4, 4)$ 53)  54) 
 55) $(4, -9)$ 56) $\left(-2, -9\frac{1}{2}\right)$ 57) $10x^2 + 10x - 20$ 58) $24x^2 + 22x + 4$
 59) $64x^2 - 40x - 24$ 60) $35b^2 + 59b + 14$ 61) $9x^3 + 3x^2 - 4x$ 62) $-12a^4 + 3a^3 + 5a^2$
 63) $n^4 + 2n^2 + 3n$ 64) $5m^3 + 6m^2 - 1$ 65) $v^2 + 12v + 32$ 66) $2m^2 + 6m - 36$
 67) $30x^2 - 58x + 16$ 68) $10p^2 - 33p - 7$ 69) $4\sqrt{6}$ 70) $-5\sqrt{5} - 3\sqrt{6}$
 71) $9\sqrt{6} - 11\sqrt{5}$ 72) $6\sqrt{2} - \sqrt{10} + 30\sqrt{5} - 25$ 73) $-12 - 8\sqrt{3}$
 74) $9 + 5\sqrt{5}$ 75) $4 + 4\sqrt{2} + \sqrt{10} + 2\sqrt{5}$ 76) 4.7×10^{-3}
 77) 9.75×10^{-1} 78) 3×10^0 79) $(3, -1)$ 80) $(0, 1)$
 81) No solution 82) $(-6, 4)$ 83) adult ticket: \$12, child ticket: \$6
 84) Van: 13, Bus: 26
 85) roll of plain wrapping paper: \$6, roll of holiday wrapping paper: \$11