

Summer Math Packet

Evaluate each expression without a calculator.

1) $7.1 - (-0.1) - 1.6$

2) $\frac{2}{7} - 2\frac{1}{3}$

Evaluate each using the values given.

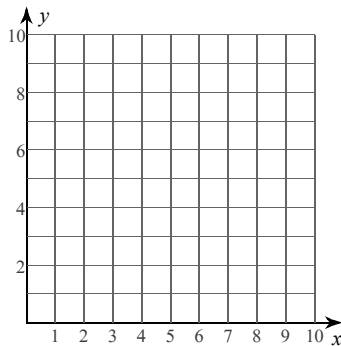
3) $h - (j - j)$; use $h = 4$, and $j = 4$

Write each as an algebraic expression.

4) 5 less than y

Plot each point.

5) $D(6, 10)$ $E(7, 4)$ $F(0, 2)$
 $G(10, 9)$ $H(1, 4)$



Solve each equation.

6) $-184 = 8(5m - 3)$

7) $-3(5x - 7) - 1 = 3x - 34$

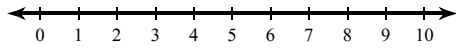
8) Kali won 87 super bouncy balls playing the bean bag toss at the county fair. At school she gave four to every student in her math class. She only has 7 remaining. How many students are in her class?

Solve each equation for the indicated variable.

9) $\frac{k}{a} = \frac{v}{w}$, for a

Solve each inequality and graph its solution.

10) $x + 2 - 5x < -14$



Solve each problem.

11) 23 is what percent of 33?

Find the slope of the line through each pair of points.

12) $(12, 6), (17, 18)$

Write the slope-intercept form of the equation of each line.

13) $3x + 2y = 8$

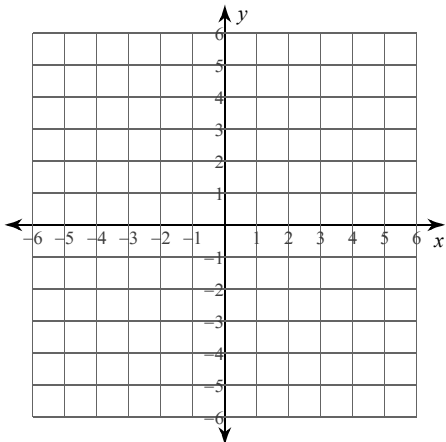
14) $y + 2 = -4(x - 1)$

Write the slope-intercept form of the equation of the line through the given points.

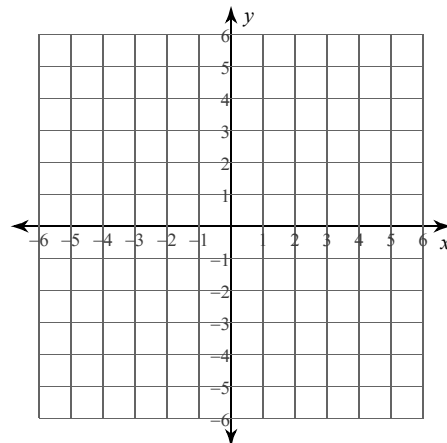
15) through: $(5, 5)$ and $(4, -2)$

Sketch the graph of each line. State the domain and range.

16) $y = \frac{3}{5}x - 3$

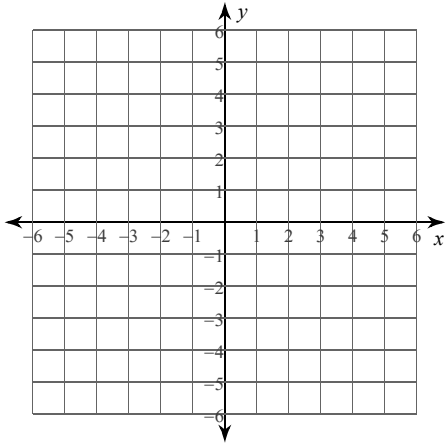


17) $3x + 4y = 8$



Sketch the graph of each linear inequality.

18) $y \geq -\frac{8}{3}x + 5$



Solve each system by substitution.

19) $x - 8y = 11$
 $5x - 2y = 17$

Solve each system by elimination.

20) $-9x + 6y = -27$
 $5x - y = 29$

21) Jessica and Lisa are selling cheesecakes for a school fundraiser. Customers can buy New York style cheesecakes and strawberry cheesecakes. Jessica sold 7 New York style cheesecakes and 2 strawberry cheesecakes for a total of \$62. Lisa sold 14 New York style cheesecakes and 5 strawberry cheesecakes for a total of \$134. Find the cost each of one New York style cheesecake and one strawberry cheesecake.

Find each product.

22) $(8k - 5)(2k + 7)$

Factor the common factor out of each expression.

23) $9a^2 + 9a + 63$

Factor each completely.

24) $15b^3 - 25b^2 + 6b - 10$

25) $m^2 - 5m - 14$

26) $6n^2 + n - 15$

27) $9v^2 + 24v + 16$

28) $25m^2 - 9$

Factor each.

29) $x^3 - 27 = 0$

30) $x^4 - 11x^2 + 18 = 0$

31) $x^4 - 10x^2 + 9 = 0$

32) $x^4 + 5x^2 - 6 = 0$

Factor each completely.

33) $375x^3 + 192$

34) $x^3 + 64$

35) $64x^3 - 1$

36) $192x^3 - 81$

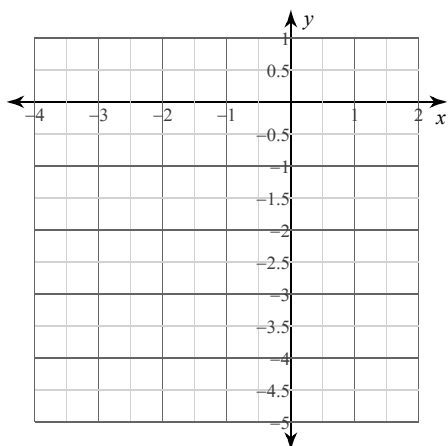
State the number of roots for each equation. Then factor each.

37) $x^3 - 2x^2 - 15x = 0$

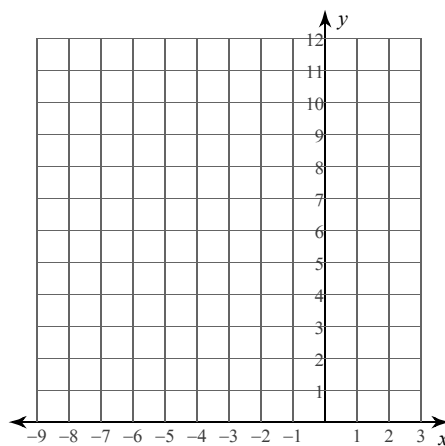
38) $x^4 + x^2 - 20 = 0$

Sketch the graph of each function. State the domain and range.

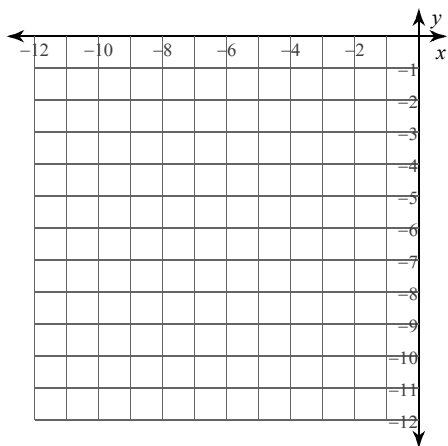
39) $y = x^2 + 2x - 3$



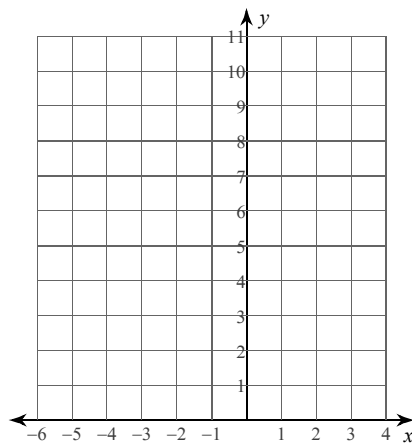
40) $y = 2x^2 - 4x + 5$



41) $y = -2(x + 3)^2 - 3$



42) $y = 2(x + 2)^2 + 2$



Solve each equation by taking square roots.

43) $6p^2 - 1 = 5$

Solve each equation by completing the square.

44) $a^2 + 6a - 82 = -6$

45) $k^2 - 6k + 12 = 4$

Solve each equation with the quadratic formula.

46) $4n^2 + 8n = 45$

Simplify.

47) $\sqrt{12}$

48) $2\sqrt{18}$

Simplify. Your answer should contain only positive exponents.

49) $\frac{2v^3}{(2u^{-2}v^2 \cdot 2u^4v^3)^{-3}}$

Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

50) $3m^{\frac{3}{2}}n^{-\frac{5}{3}}$

51) $3y \cdot 2x^{-\frac{1}{2}} \cdot 4x^{-2}y^2$

52) $2m^2n^{\frac{3}{4}} \cdot m^2n^{-\frac{3}{4}}$

53) $(n^2)^{-\frac{3}{4}}$

54) $\left(x^3 y^2\right)^{-\frac{5}{3}}$

55) $\frac{2x^{-\frac{5}{4}} y^{-2}}{4y^2}$

Simplify.

56) $625^{\frac{5}{4}}$

57) $81^{\frac{3}{2}}$

Write each expression in radical form.

58) $x^{\frac{7}{6}}$

59) $(2n)^{\frac{2}{5}}$

Write each expression in exponential form.

60) $(\sqrt[6]{n})^5$

61) $(\sqrt[4]{10m})^3$

62) $\sqrt[3]{7}$

63) $(\sqrt[3]{3})^2$

Simplify.

64) $16^{\frac{1}{4}}$

65) $343^{\frac{4}{3}}$

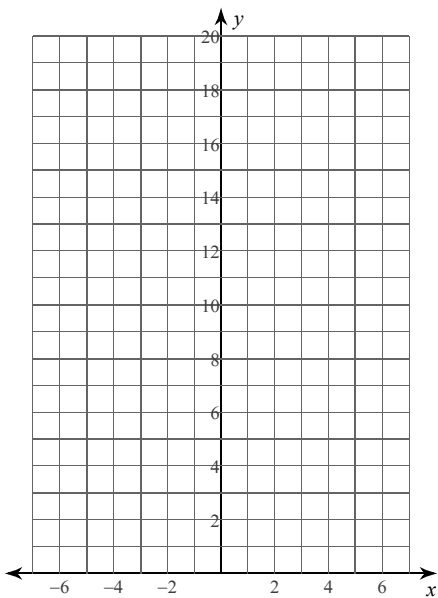
66) $\frac{\sqrt[3]{-9}}{\sqrt[3]{8}}$

67) $\frac{\sqrt[3]{2}}{\sqrt[3]{54}}$

68) $\sqrt{10}(\sqrt{3} + \sqrt{5})$

Sketch the graph of each function. State the domain and range.

69) $y = \left(\frac{1}{2}\right)^x$



Perform the indicated operation.

70) $f(n) = n^2 - 2$
 $g(n) = 2n + 3$
 Find $(f + g)(n)$

71) $f(t) = -2t$
 $g(t) = 4t - 3$
 Find $(f - g)(t)$

72) $g(x) = 2x - 1$
 $f(x) = -x^3 - x^2$
 Find $(g \cdot f)(x)$

73) $h(x) = x + 3$
 $g(x) = 3x + 4$
 Find $\left(\frac{h}{g}\right)(x)$

74) $h(n) = 3n - 5$
 $g(n) = n^2 + 3$
 Find $(h \circ g)(n)$