Elementary Algebra Review

1 a. If $x = -1$, then $6x - 4 =$

b) If $x = -2$ then $x^2 - 3x + 10 =$

2. If $x = -1$ and $y = -2$ then $\frac{x^2y - 9}{2y^2} =$

3. a) $-5(x - 2) =$

b) $-6x(2x^2 - 5) =$

4. a) Combine like terms: $8x - 3 - 6x - 5$

b) Combine like terms: $7x + 3y + 4x - y$

5. a) Subtract $3x - 2$ from $8x + 1$

b) Subtract $4x + 5$ from $2x - 8$

6. a) $(2x + 7)(3x - 5) =$

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

7. a) $(4a - 5b)^2 =$

b) $(x - 3)^2$

8. a) $(4x^2)(2x^3)$

b) $(3a^4b^2)(5a^2b) =$

9 a) $\frac{12x^5}{16x^9}$

b) $\frac{28x^7}{-32x^2}$

c) $\frac{15x^4y^7}{25x^6y^3}$

10. a) $(3x)^3 =$

b) $(2x^3)^2 =$

c) $(2x^3)^4$

11. a) $5x^3 - 2x^2 - x - (6x^2 - 4)$

b) $8x^3 - 4 - (2x^2 - 3x^3)$

12. Solve: $4x - 9 = -9$

13. Solve: $6x = 8 - 3x$

14. Solve: $10 - 7x = 12$

15. Solve: $3x + 17 = 5x + 3$

16. Solve: $7x + 3(2x + 5) = 10x + 17$

17. Solve: $7 - 3x = 8$

18. Solve: $7x - 5 = 3x$, then $x =$

19. If $3z - by = 4z$ then $y =$

20a. Solve for x: $y = mx + b$

20b. Solve for x: $cx - y = b$

21a) $\frac{2}{3} - \frac{3}{x} = 1$ b) $\frac{2}{5} = \frac{x-2}{20}$

22a) $\frac{2}{x}+\frac{3}{y}$ b) $\frac{2}{x+5}+\frac{3}{x}$

23a) $\frac{x}{6} - \frac{y}{2} =$ b) $\frac{x}{5} + \frac{3x}{4} =$

24a). $\frac{2}{x} + 5 = \frac{1}{5}$ b) $\frac{2x - 1}{3} = \frac{x + 2}{4}$

25. Solve the system of equations for x an y: $\begin{aligned} 3x-y&=2 \\ 2x-y&=-4 \end{aligned}$

26. Solve the system for x and y: $\begin{aligned} 3x-4y&=2 \\ 4x-y&=20 \end{aligned}$

27a) Factor completely: $2x^2 + 15x + 7$ b) $a^2 - 11ab + 24b^2$

28a) Factor completely: $x^2 - 10x - 24$ b) $12x^2 + 11x - 15$

29. Which of the following is a factor of $7x^2 + 2x - 5$:
a) $7x - 5$ b) $7x + 5$ c) $7x - 1$ d) $7x + 1$

30. A factored form of $1 - 49x^2$ is:
a) $(7x - 1)(7x + 1)$ b) $(1 - 7x)(1 + 7x)$ c) $(1 - 7x)(1 - 7x)$

31. $5ab^2 - 15a^2 =$ a) $5ab(b - 3a)$ b) $5a(b^2 - 3a)$ c) $5a(1 - 3a)$

32. Reduce to lowest terms: a) $\frac{m^2 - 2m - 3}{m^2 - 9}$ b) $\frac{4x^2-20x}{x^2-2x-15}$

33. $\dfrac{x^2+2x-8}{9x^2} \bullet \dfrac{3x-12}{x^2-16}$

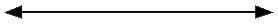
34. $\dfrac{x^2-9}{2x^2-6x} \div \dfrac{2x^2+5x-3}{4x^2-1}$

35. Perform the indicated operation: $\dfrac{3}{x+2}+\dfrac{5}{x}$

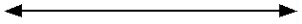
36. Solve for the unknown:
a) $a^2 - 49 = 0$ b) $x^2 - 9x + 20 = 0$ c) $x^2 + 8x = -15$

37. Solve for x: $4 - 5x < 14$
a) $x < -2$ b) $x < 2$ c) $x > 2$ d) $x > -2$

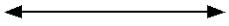
38. Solve for x and graph: $5x + 2 \geq 4x - 6$



39. Solve for x and graph:
a) $5x - 3 < 2x$



b) $3-2x \geq 5$



40a. Solve the system: $3x - y = -15$
$x = y - 7$

b. Solve the system: $4x + 5y = 6$
$y = 2x - 10$

41. Solve for the unknown: $\dfrac{3}{x-1}-\dfrac{1}{x+9}=\dfrac{18}{x^2+8x-9}$

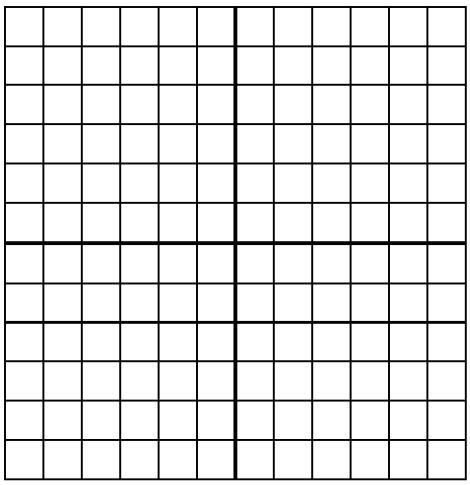
42. Solve for the unknown: $\dfrac{11}{x+2}-\dfrac{1}{x-3}=\dfrac{5}{x^2-x-6}$

43. Complete the ordered pairs when $y = 3x - 2$ $(0\ ,\ ),\ (\ ,\ 0),\ (\dfrac{1}{3},\ ),\ (\ ,\ 4)$

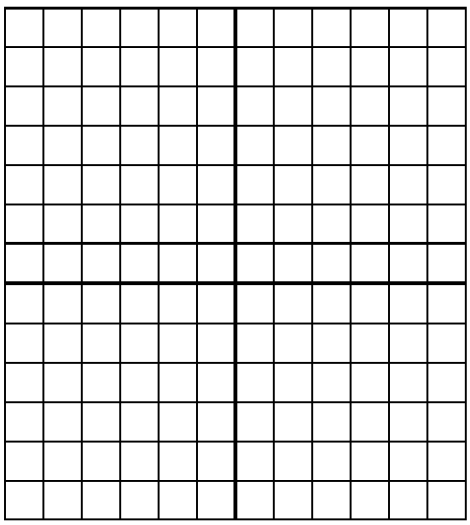
44. Complete the ordered pairs when $3x + 4y = 12$

$(0, \ ), (\ \ ,0), (\ \ , \frac{3}{4})$

45. Graph: $2x - 3y = 12$



46. Graph: $3x - y = 6$



47a) $4\sqrt{6} - \sqrt{6} + 2\sqrt{6} =$

b) $\sqrt{27} - \sqrt{3} + 2\sqrt{12} =$

48a) $2\sqrt{50} + 3\sqrt{18} - \sqrt{32} =$

b) $\sqrt{63} - 2\sqrt{28} + 5\sqrt{7}$

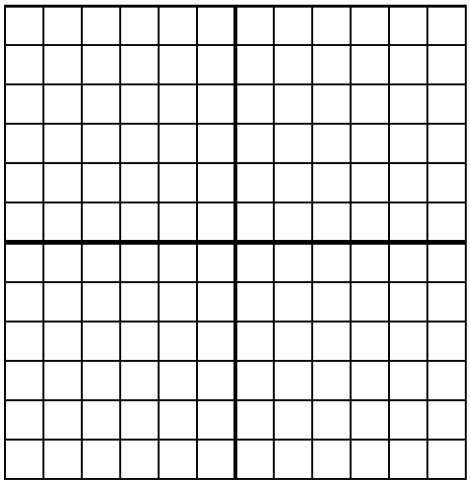
49a) $\sqrt{5a} \cdot \sqrt{10a} =$

b) $(3\sqrt{6})(5\sqrt{2}) =$

50a) $(3\sqrt{5})(2\sqrt{10}) =$

b) $(4\sqrt{3})(3\sqrt{6}) =$

51. Graph $y = 3x$



52. The length of a rectangular playing field is 5 feet less than twice the width. If the perimeter of the playing field is 230 feet, find the length and width of the field.

53. The sum of two consecutive integers is 157. Find the smallest integer.

54. The sum of three consecutive integers is 117. Find the largest integer.

55. The length of a rectangle is 1 inch more than twice its width, and the perimeter of the rectangle is 74in. What are the dimensions of the rectangle?

56. 400 tickets were sold for a concert. The receipts from ticket sales were $3100 and the ticket prices were $7 and $9. How many of each type ticket were sold?

57. Vanessa went to the bank to cash a check for $420. She wanted all $10 and $20 bills. She received 27 bills. How many of each kind did she receive?

58. Tom is 3 times as old as John, while Mary is two years older than John. If the sum of their ages is 22, how old is Mary?