

TS/83 Multiple Choice 001 09/01/15

① $7y + 2 = 5y + 13$

- (a) $y = -\frac{2}{11}$ (b) $y = \frac{2}{11}$ (c) $y = \frac{11}{2}$ (d) $y = -\frac{11}{2}$

② $\frac{x}{9} = \frac{x+1}{10}$

- (a) $x = -1$ (b) $x = 1$ (c) $x = 9$ (d) $x = -9$

③ $10 = 2 + \frac{m}{2}$

- (a) $m = -2$ (b) $m = 2$ (c) $m = 16$ (d) $m = -16$

④ $1 + \frac{6}{x} = -17$

- (a) $x = -\frac{1}{6}$ (b) $x = \frac{1}{6}$ (c) $x = -\frac{1}{3}$ (d) $x = \frac{1}{3}$

⑤ $3 - x = 2(x - 3)$

- (a) $x = -2$ (b) $x = 2$ (c) $x = 3$ (d) $x = -3$

⑥ Find a if $ax - 80 = x + 2$, $x = 2$

- (a) $a = -40$ (b) $a = 40$ (c) $a = 42$ (d) $a = -42$

⑦ $6x + 60 = 8x$

- (a) $x = -6$ (b) $x = 6$ (c) $x = 30$ (d) $x = -30$

⑧ Find C if $k = C + 293$, $k = 30$

- (a) $C = -273$ (b) $C = 273$ (c) $C = -263$ (d) $C = 263$

9. $6(x-2) - 48 = 8x$

- (a) $x = -20$ (b) $x = 20$ (c) $x = -30$ (d) $x = 30$

10. Find y if $3x + 5y = 59$, $x = 3$

- (a) $y = -18$ (b) $y = 18$ (c) $y = 10$ (d) $y = -10$

11. $x - 2 = 4x - 2$

- (a) $x = -2$ (b) $x = -4$ (c) $x = 0$ (d) $x = 4$

12. $4 - x = x - 4$

- (a) $x = 8$ (b) $x = 0$ (c) $x = 4$ (d) $x = -4$

13. $\frac{2}{5x} + \frac{1}{x} = 7$

- (a) $x = -\frac{1}{7}$ (b) $x = \frac{1}{7}$ (c) $x = \frac{1}{5}$ (d) $x = -\frac{1}{5}$

14. $-4x - 8 < -12$

- (a) $x < -1$ (b) $x > -1$ (c) $x > 1$ (d) $x < 1$

15. $\frac{x}{4} + \frac{3x}{8} > 5$

- (a) $x < -8$ (b) $x > -8$ (c) $x > 8$ (d) $x < 8$

16. Find P if $P = 2(L + W)$, $L = 10$, $W = 8$

- (A) $P = 10$ (B) $P = 20$ (C) $P = 36$ (D) $P = 16$

17. Find $f(4)$ if $f(x) = \frac{x-20}{x-5}$

- (A) $f(4) = 8$ (B) $f(4) = -16$ (C) $f(4) = 16$ (D) $f(4) = 0$

18. Find A if $A = \pi r^2$, $\pi = 3.14$, $r = 10$

- (A) $A = .314$ (B) $A = 3.14$ (C) $A = 314$ (D) $A = 31.4$

19. Find C if $C = \frac{5}{9}(F - 32)$, $F = 68$

- (A) $C = -10$ (B) $C = 10$ (C) $C = 20$ (D) $C = -20$

20. Find $f(-2)$ if $f(x) = -4x^2 - 3x + 10$

- (A) $f(-2) = 1$ (B) $f(-2) = -4$ (C) $f(-2) = 0$ (D) $f(-2) = 4$

21. If $x = -7$ Evaluate $(x+9)(x+7)$

- (A) 2 (B) -7 (C) 0 (D) -4

22. Find $f(3)$ if $f(x) = x^{-2}$

- (A) $f(3) = -9$ (B) $f(3) = -\frac{1}{9}$ (C) $f(3) = \frac{1}{9}$ (D) $f(3) = 9$

23. Find $f(2)$ if $f(x) = \frac{10x}{1-x}$

- (A) $f(2) = -10$ (B) $f(2) = 10$ (C) $f(2) = -20$ (D) $f(2) = 20$

24. Find $f(-1)$ if $f(x) = \sqrt{x+5} + 3$ ~~FS/83-008~~

- (a) $f(-1) = 4$ (b) $f(-1) = 0$ (c) $f(-1) = 5$ (d) $f(-1) = 6$

25. Find $f(-8)$ if $f(x) = |8x-3|$

- (a) $f(-8) = -60$ (b) $f(-8) = 60$ (c) $f(-8) = 67$ (d) $f(-8) = -67$

26. Find $Pr-r$ if $P = -5$, $r = \frac{1}{2}$

- (a) -4 (b) 4 (c) -3 (d) 3

27. Find $f(\frac{1}{4})$ if $f(x) = \frac{1}{x} + \frac{8}{x}$

- (a) $f(\frac{1}{4}) = 8$ (b) $f(\frac{1}{4}) = 0$ (c) $f(\frac{1}{4}) = 36$ (d) $f(\frac{1}{4}) = -36$

28. Find the mean of 80, 90, 70, 95, 100.

- (a) 75 (b) 90 (c) 87 (d) 88

29. Evaluate $2000(1.04)^2$

- (a) 2.16320 (b) 21.6320 (c) 2163.20 (d) 216.320

30. Simplify $\frac{a^{18}}{a^6}$

- (a) a^3 (b) a^2 (c) a^{12} (d) a^{24}

31. Simplify $10a^3(ab^2+b^2)$

(a) $10a^4b^2 - 10a^3b^2$

(b) $10a^2b^2 + 10a^6b^7$

(c) $10a^4b^2 + 10a^3b^2$

(d) $5a^4b^2 + 5a^3b^2$

32. Simplify $\left(\frac{2}{x}\right)^3$

(a) $\frac{8}{x^2}$

(b) $\frac{24}{x^3}$

(c) $\frac{8}{x^3}$

(d) $\frac{4}{x^3}$

33. Simplify $\left(\frac{3x}{5y}\right)\left(\frac{125y^3}{27x}\right)$

(a) $\frac{25y}{9x}$

(b) $\frac{25y}{9}$

(c) $\frac{25y^2}{9}$

(d) $\frac{25y^2}{9x}$

34. Simplify $\frac{x+8x^2}{x}$

(a) $1+x^2$

(b) $1+4x$

(c) $1+8x$

(d) $1-8x$

35. Find N if $a^2+N+5b^2=(a+b)(a+5b)$

(a) $N=3ab$

(b) $N=2ab$

(c) $N=6ab$

(d) $N=5ab$

36. Find V if $V=\pi r^2 h$, $r=10a$, $h=2a+3$

(a) $V=200\pi a^3-300\pi a$

(b) $V=200\pi a^2+300\pi a^3$

(c) $V=200\pi a^3+300\pi a^2$

(d) $V=200\pi a^3+300\pi a$

37. Find area



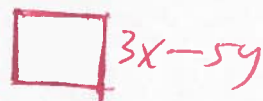
(a) $A=2x^2+x+36$

(b) $A=2x^2-36$

(c) $A=2x^2-x-36$

(d) $A=2x^2+36$

38 Find area



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(A) $A = 9x^2 + 25y^2$

(B) $A = 9x^2 - 25y^2$

(C) $A = 9x^2 - 30xy + 25y^2$

(D) $A = 9x^2 + 30xy + 25y^2$

39 If $2x^2 - 8 = k$ then $x^2 - 4 =$

(A) $-2k$

(B) $2k$

(C) $\frac{k}{2}$

(D) $-\frac{k}{2}$

40 Simplify $(3xy^7)^4$

(A) $27x^4y^{28}$

(B) $9x^4y^{28}$

(C) $81x^4y^{28}$

(D) $80x^4y^{28}$

41 Simplify $\left(\frac{24k}{12}\right)^2$

(A) $8k$

(B) $24k^2$

(C) $4k^2$

(D) $2k^2$

42 Simplify $p - 0.25p$

(A) $.27p$

(B) $.65p$

(C) $.75p$

(D) $.85p$

43 Find x $\frac{ax-b}{8a-1} = b$

(A) $x = 4b$

(B) $x = 3b$

(C) $x = 8b$

(D) $x = 6b$

44 Simplify $\frac{20a^3b^4}{15a^7b^2}$

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(a) $\frac{4b^3}{3a^3}$

(b) $\frac{20b^2}{3a^4}$

(c) $\frac{4b^2}{3a^4}$

(d) $\frac{2b^2}{3a^4}$

45 Simplify $(8x+5y)(8x-5y)$

(a) $64x^2 - 80xy + 25y^2$ (b) $64x^2 + 80xy - 25y^2$

(c) $64x^2 - 25y^2$

(d) $64x^2 + 25y^2$

46 Simplify $(5x-2y)(5x-2y)$

(a) $25x^2 + 4y^2$

(b) $25x^2 - 4y^2$

(c) $25x^2 - 20xy + 4y^2$

(d) $25x^2 + 20xy + 4y^2$

47 Simplify $(6x-5y)^2$

(a) $36x^2 + 25y^2$

(b) $36x^2 - 25y^2$

(c) $36x^2 - 60xy + 25y^2$

(d) $36x^2 + 60xy + 25y^2$

48 Simplify $(x-1)(x+3)$

(a) $x^2 - 4x - 3$ (b) $x^2 + 4x - 3$ (c) $x^2 + 2x - 3$ (d) $x^2 - 2x - 3$

49 Factor $x^2 - 81$

(a) $(x+81)(x-81)$ (b) $(x+4)(x-4)$ (c) $(x+9)(x-9)$ (d) $(x-9)(x-9)$

50 Factor $x^2 - 25y^2$

(a) $(x + 25y)(x - 25y)$ (b) $(x + 5y)(x + 5y)$

(c) $(x + 5y)(x - 5y)$ (d) $(x - 5y)(x - 5y)$

51 Factor $\frac{25x^2}{9} - 64$

(a) $(\frac{5x}{9} + 8)(\frac{5x}{9} - 8)$ (b) $(\frac{5x}{3} + 8)(\frac{5x}{3} + 8)$

(c) $(\frac{5x}{3} + 8)(\frac{5x}{3} - 8)$ (d) $(\frac{5x}{3} - 8)(\frac{5x}{3} - 8)$

52 Factor $\frac{25x^2}{16} - \frac{9y^2}{49}$

(a) $(5x + 3y)(5x - 3y)$ (b) $(\frac{5x}{4} + \frac{3y}{7})(\frac{5x}{4} + \frac{3y}{7})$

(c) $(\frac{5x}{4} + \frac{3y}{7})(\frac{5x}{4} - \frac{3y}{7})$ (d) $(\frac{5x}{4} - \frac{3y}{7})(\frac{5x}{4} - \frac{3y}{7})$

53 Factor $\frac{x^2}{9} - \frac{y^2}{25}$

(a) $(3x + 5y)(3x - 5y)$ (b) $(\frac{x}{3} + \frac{y}{5})(\frac{x}{3} + \frac{y}{5})$

(c) $(\frac{x}{3} + \frac{y}{5})(\frac{x}{3} - \frac{y}{5})$ (d) $(\frac{x}{3} - \frac{y}{5})(\frac{x}{3} - \frac{y}{5})$

54 Factor $\frac{9x^2}{16} - \frac{49}{25}$

(a) $(4x + 5y)(4x - 5y)$ (b) $(\frac{3x}{4} + \frac{7}{5})(\frac{3x}{4} + \frac{7}{5})$

(c) $(\frac{3x}{4} + \frac{7}{5})(\frac{3x}{4} - \frac{7}{5})$ (d) $(\frac{3x}{4} - \frac{7}{5})(\frac{3x}{4} - \frac{7}{5})$

55. Factor $144x^2 - 25y^2$

- (a) $(12x+25y)(12x-25y)$ (b) $(12x+5y)(12x+5y)$
 (c) $(12x+5y)(12x-5y)$ (d) $(12x-5y)(12x-5y)$

56. Factor $x^2 + x - 12$

- (a) $(x+3)(x-4)$ (b) $(x+3)(x+4)$
 (c) $(x-3)(x+4)$ (d) $(x-3)(x-4)$

57. Factor $x^2 - 10x + 16$

- (a) $(x+2)(x-8)$ (b) $(x-2)(x+8)$
 (c) $(x-2)(x-8)$ (d) $(x+2)(x+8)$

58. Factor $x^2 + x - 2$

- (a) $(x+1)(x-2)$ (b) $(x+1)(x+2)$
 (c) $(x-1)(x+2)$ (d) $(x-1)(x-2)$

59. Factor $x^3 - x^2 - 6x$

- (a) $x(x+2)(x+3)$ (b) $x(x-2)(x+3)$
 (c) $x(x+2)(x-3)$ (d) $x(x-2)(x-3)$

60. Factor $2x^2 + 9x - 5$

- (a) $(2x+1)(x-5)$ (b) $(2x+1)(x+5)$
 (c) $(2x-1)(x+5)$ (d) $(2x-1)(x-5)$

61. Factor $2x^2 + 9x - 18$

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(a) $(2x+3)(x-6)$ (b) $(2x+3)(x+6)$

(c) $(2x-3)(x+6)$ (d) $(2x-3)(x-6)$

62. Factor $3x^2 - 10x - 8$

(a) $(3x-2)(x+4)$ (b) $(3x+2)(x+4)$

(c) $(3x+2)(x-4)$ (d) $(3x-2)(x-4)$

63. Factor $8x^2 - 9x + 1$

(a) $(8x-1)(x+1)$ (b) $(8x+1)(x-1)$

(c) $(8x-1)(x-1)$ (d) $(8x+1)(x+1)$

64. Solve $x^2 + x - 12 = 0$

(a) $\{-3, 4\}$ (b) $\{-3, -4\}$ (c) $\{3, -4\}$ (d) $\{3, 4\}$

65. Solve $x^2 - 10x = -16$

(a) $\{2, -8\}$ (b) $\{-2, 8\}$ (c) $\{2, 8\}$ (d) $\{-2, -8\}$

66. Solve $x^2 - 2 = -x$

(a) $\{-1, 2\}$ (b) $\{1, 2\}$ (c) $\{1, -2\}$ (d) $\{-1, -2\}$

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67) Solve $x^2 - 6 = x$

- (a) $\{2, -3\}$ (b) $\{-2, -3\}$ (c) $\{-2, 3\}$ (d) $\{2, 3\}$

68) Solve $2x^2 + 9x - 5 = 0$

- (a) $\{-\frac{1}{2}, -5\}$ (b) $\{-\frac{1}{2}, 5\}$ (c) $\{\frac{1}{2}, -5\}$ (d) $\{\frac{1}{2}, 5\}$

69) Solve $2x^2 + 9x - 18 = 0$

- (a) $\{-\frac{3}{2}, 6\}$ (b) $\{-\frac{3}{2}, -6\}$ (c) $\{\frac{3}{2}, -6\}$ (d) $\{\frac{3}{2}, 6\}$

70) Solve $3x^2 - 10x = 8$

- (a) $\{\frac{2}{3}, -4\}$ (b) $\{-\frac{2}{3}, -4\}$ (c) $\{-\frac{2}{3}, 4\}$ (d) $\{\frac{2}{3}, 4\}$

71) Solve $8x^2 = 9x - 1$

- (a) $\{\frac{1}{8}, -1\}$ (b) $\{-\frac{1}{8}, -1\}$ (c) $\{\frac{1}{8}, 1\}$ (d) $\{-\frac{1}{8}, 1\}$

72) Factor GCF $15y - 3$

- (a) $15(y + 3)$ (b) $15(y - 3)$ (c) $3(5y - 1)$ (d) $3(5y + 1)$

73) Factor GCF $15x^3y - 3x^2y^2$

- (a) $15xy(5x + y)$ (b) $15x^2y(5x - y)$

- (c) $3x^2y(5x - y)$ (d) $3xy(5x - y)$

74) Factor GCF $6x^3 + 15x^2 + 9xy^2$ TS183-012

(a) $3x(6x^2 + 3x + 2y^2)$ (b) $3x(2x^2 + 10x + 5y^2)$

(c) $3x(2x^2 + 5x + 3y^2)$ (d) $3x(2x^2 - 5x + 3y^2)$

75) Factor GCF $2x^3 - 10x^2 - 10x$

(a) $2x(x^2 - x - 5)$ (b) $2x(x^2 + 3x + 5)$

(c) $2x(x^2 - 5x - 5)$ (d) $2x(x^2 + 5x + 5)$

76) Solve $(x-2)^2 = 25$

(a) $\{3, -7\}$ (b) $\{3, 7\}$ (c) $\{-3, 7\}$ (d) $\{-3, -7\}$

77) Solve $\frac{x}{5} = \frac{5}{x}$

(a) $\{-5\}$ (b) $\{5\}$ (c) $\{-5, 5\}$ (d) $\{-25, 25\}$

78) Solve $\frac{x}{2} = \frac{1}{x}$

(a) $\{-\sqrt{3}, \sqrt{3}\}$ (b) $\{-\sqrt{2}\}$ (c) $\{-\sqrt{2}, \sqrt{2}\}$ (d) $\{\sqrt{2}\}$

79) Solve $\sqrt{x-2} = 4$

(a) $x = -9$ (b) $x = -18$ (c) $x = 18$ (d) $x = 9$

80. Solve $\sqrt{x} + 2 = 9$

TS/83-013

- (a) $x = 7$ (b) $x = 11$ (c) $x = 49$ (d) $x = 7$

81. Solve $-4x^2(x-8) = 0$

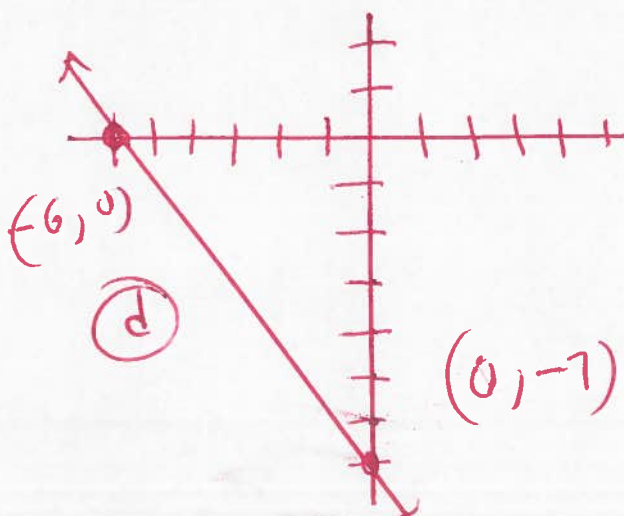
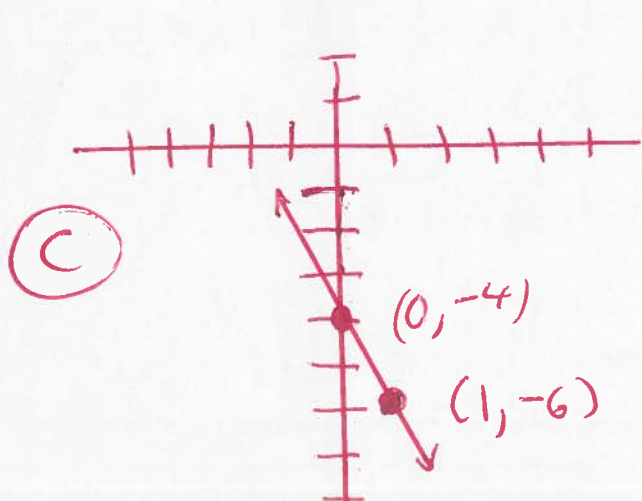
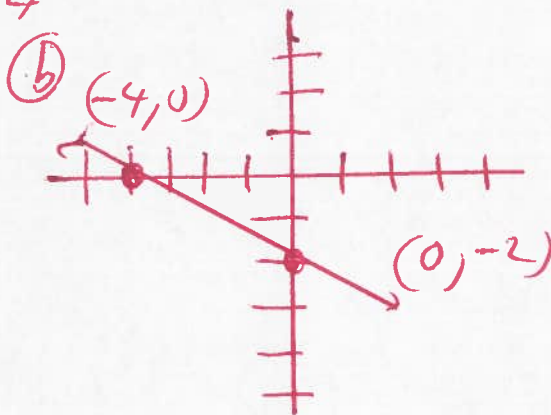
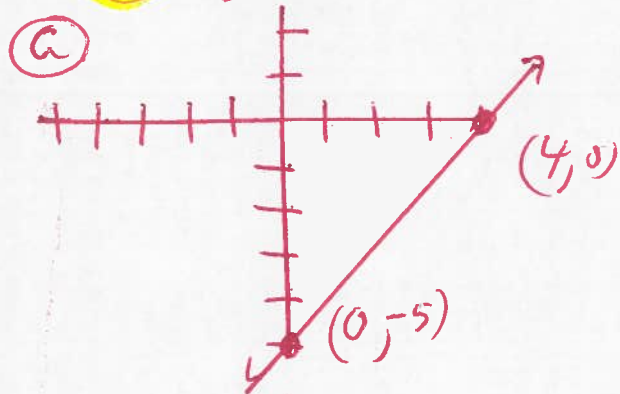
- (a) $\{0, -4\}$ (b) $\{-4, -8\}$ (c) $\{0, 8\}$ (d) $\{0, -8\}$

82. Solve
$$\begin{aligned} 2x + 5y &= 7 \\ 3x + 2y &= 5 \end{aligned}$$

- (a) $(x, y) = (7, 5)$ (b) $(x, y) = (1, -1)$

- (c) $(x, y) = (1, 1)$ (d) $(x, y) = (-1, 1)$

83. Graph $y = -2x - 4$



1) $7y+2=5y+13$

2) $\frac{x}{9} = \frac{x+1}{10}$

3) $10 = 2 + \frac{m}{2}$

4) $1 + \frac{6}{x} = -17$

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

6) Find a if $ax-80=x+2$, $x=2$

7) $6x+60=8x$

8) Find C if $k=C+293$, $k=30$

9) $6(x-2)-48=8x$

10) Find y if $3x+5y=59$, $x=3$

11) $x-2=4x-2$

12) $4-x=x-4$

13) $\frac{2}{5x} + \frac{1}{x} = 7$

14) $-4x-8 < -12$

15) $\frac{x}{4} + \frac{3x}{8} > 5$

16) Find P if $P=2(L+W)$, $L=10$, $W=8$

17) Find $f(4)$ if $f(x) = \frac{x-20}{x-5}$

18) Find A if $A=\pi r^2$, $\pi=3.14$, $r=10$

19) Find C if $C = \frac{5}{9}(F-32)$, $F=68$

20) Find $f(-2)$ if $f(x) = -4x^2 - 3x + 10$

21) If $x=-7$ Evaluate $(x+9)(x+7)$

22) Find $f(3)$ if $f(x) = x^{-2}$

23) Find $f(2)$ if $f(x) = \frac{10x}{1-x}$

24) Find $f(-1)$ if $f(x) = \sqrt{x+5} + 3$

25) Find $f(-8)$ if $f(x) = |8x-3|$

26) Find $P-r$ if $p=-5$, $r=\frac{1}{2}$

27) Find $f(\frac{1}{4})$ if $f(x) = \frac{1}{x} + \frac{8}{x}$

28) Find the mean of 80, 90, 70, 95, 100

29) Evaluate $2000(1.04)^2$

30) Simplify $\frac{a^{18}}{a^6}$

31) Simplify $10a^3(ab^2+b^2)$

32) Simplify $(\frac{2}{x})^3$

33) Simplify $(\frac{3x}{5y})(\frac{125y^3}{27x})$

34) Simplify $\frac{x+8x^2}{x}$

35) Find N if $a^2+N+5b^2=(a+b)(a+5b)$

36) Find V if $V=\pi r^2 h$

$r=10a$, $h=2a+3$

37) Find area

$\boxed{} 2x-9$

38) Find area of a square with a side of $x+4$ of $3x-5y$

9-10-15

TS183

39. If $2x^2 - 8 = k$ then $x^2 - 4 =$
40. Simplify $(3xy^7)^4$
41. Simplify $(\frac{24k}{12})^2$
42. Simplify $p - 0.25p$
43. Find x , $\frac{ax-b}{8a-1} = b$
44. Simplify $\frac{20a^3b^4}{15a^7b^2}$
45. Simplify $(8x+5y)(8x-5y)$
46. Simplify $(5x-2y)(5x-2y)$
47. Simplify $(6x-5y)^2$
48. Simplify $(x-1)(x+3)$
49. Factor $x^2 - 81$
50. Factor $x^2 - 25y^2$
51. Factor $\frac{25x^2}{9} - 64$
52. Factor $\frac{25x^2}{16} - \frac{9y^2}{49}$
53. Factor $\frac{x^2}{9} - \frac{y^2}{25}$
54. Factor $\frac{9x^2}{16} - \frac{49}{25}$
55. Factor $144x^2 - 25y^2$
56. Factor $x^2 + x - 12$
57. Factor $x^2 - 10x + 16$
58. Factor $x^2 + x - 2$
59. Factor $x^3 - x^2 - 6x$
60. Factor $2x^2 + 9x - 5$
61. Factor $2x^2 + 9x - 18$
62. Factor $3x^2 - 10x - 8$
63. Factor $8x^2 - 9x + 1$
64. Solve $x^2 + x - 12 = 0$
65. Solve $x^2 - 10x = -16$
66. Solve $x^2 - 2 = -x$
67. Solve $x^2 - 6 = x$
68. Solve $2x^2 + 9x - 5 = 0$
69. Solve $2x^2 + 9x - 18 = 0$
70. Solve $3x^2 - 10x = 8$
71. Solve $8x^2 = 9x - 1$
72. Factor GCF $15y - 3$
73. Factor GCF $15x^3y - 3x^2y^2$
74. Factor GCF $6x^3 + 15x^2 + 9xy^2$
75. Factor GCF $2x^3 - 10x^2 - 10x$
76. Solve $(x-2)^2 = 25$ $x =$
77. Solve $\frac{x}{5} = \frac{5}{x}$ $x =$
78. Solve $\frac{x}{2} = \frac{1}{x}$ $x =$
79. $\sqrt{x-2} = 4$ $x =$
80. $\sqrt{x} + 2 = 9$ $x =$
81. $-4x^2(x-8) = 0$ $x =$
82. $2x + 5y = 7$ $(x, y) = (,)$
83. graph $3x + 2y = 5$
 $y = -2x - 4$

$$\begin{aligned}
 ① \quad 7y + 2 &= 5y + 13 \\
 7y + \cancel{2} - \cancel{2} &= 5y + 13 - 2 \\
 7y &= 5y + 11 \\
 7y - 5y &= 5y + 11 - 5y \\
 2y &= 11 \\
 \frac{2y}{2} &= \frac{11}{2} \\
 y &= \frac{11}{2}
 \end{aligned}$$

3.
Tsi 83

$$② \quad \frac{x}{9} = \frac{x+1}{10}$$

Cross mult
↗

$$\begin{aligned}
 10(x) &= 9(x+1) \\
 10x &= 9x + 9 \\
 10x - 9x &= 9x + 9 - 9x \\
 1x &= 9 \\
 x &= 9
 \end{aligned}$$

$$③ \quad 10 = 2 + \frac{m}{2}$$

$$10 - 2 = \cancel{2} + \frac{m}{2} - \cancel{2}$$

$$8 = \frac{m}{2}$$

$$\frac{8}{1} = \frac{m}{2}$$

Cross mult
↗

$$2(8) = 1(m)$$

$$16 = m$$

$$④ \quad 1 + \frac{6}{x} = -17$$

$$\cancel{1} + \frac{6}{x} - \cancel{1} = -17 - 1$$

$$\frac{6}{x} = -18$$

$$\frac{6}{x} = -\frac{18}{1}$$

$$1(6) = -18(x)$$

$$6 = -18x$$

$$\frac{6}{-18} = \frac{-18x}{-18}$$

$$-\frac{6(1)}{6(3)} = x$$

$$-\frac{1}{3} = x$$

Cross mult
↗

$$(5) \quad 3 - x = 2(x - 3)$$

$$3 - x = 2x - 6$$

$$\cancel{3} - x - \cancel{3} = 2x - 6 - 3$$

$$-x = 2x - 9$$

$$-x - 2x = \cancel{2x} - 9 - \cancel{2x}$$

$$-1x - 2x = -9$$

$$-3x = -9$$

$$\frac{-3x}{-3} = \frac{-9}{-3}$$

$$x = 3$$

$$(6) \quad \text{Find } a \text{ if } ax - 80 = x + 2, \quad x = 2$$

$$ax - 80 = x + 2$$

$$a(2) - 80 = (2) + 2$$

$$2a - 80 = 2 + 2$$

$$2a - 80 = 4$$

$$2a - \cancel{80} + \cancel{80} = 4 + 80$$

$$2a = 84$$

$$\frac{2a}{2} = \frac{84}{2}$$

$$a = 42$$

$$(7) \quad 6x + 60 = 8x$$

$$6x + \cancel{60} - \cancel{60} = 8x - 60$$

$$6x = 8x - 60$$

$$6x - 8x = \cancel{8x} - 60 - \cancel{8x}$$

$$-2x = -60$$

$$\frac{-2x}{-2} = \frac{-60}{-2}$$

$$x = 30$$

8. Find C if $k = C + 293$, $k = 30$

$$k = C + 293$$

$$30 = C + 293$$

$$30 - 293 = C + 293 - 293$$

$$\underline{-263 = C}$$



9. $6(x-2) - 48 = 8x$

$$6x - 12 - 48 = 8x$$

$$6x - 60 = 8x$$

$$6x - 60 + 60 = 8x + 60$$

$$6x = 8x + 60$$

$$6x - 8x = 8x + 60 - 8x$$

$$-2x = 60$$

$$\frac{-2x}{-2} = \frac{60}{-2}$$

$$\underline{x = -30}$$

10. Find y if $3x + 5y = 59$, $x = 3$

$$3x + 5y = 59$$

$$3(3) + 5y = 59$$

$$9 + 5y = 59$$

$$9 + 5y - 9 = 59 - 9$$

$$5y = 50$$

$$\frac{5y}{5} = \frac{50}{5}$$

$$\underline{y = 10}$$

$$(11) \quad x-2 = 4x-2$$

$$x-2+2 = 4x-2+2$$

$$x = 4x$$

$$1x-4x = 4x-4x$$

$$-3x = 0$$

$$\frac{-3x}{-3} = \frac{0}{-3}$$

$$x = 0$$

$$(12) \quad 4-x = x-4$$

$$4-x-4 = x-4-4$$

$$-x = x-8$$

$$-x-x = x-8-x$$

$$-1x-1x = -8$$

$$-2x = -8$$

$$\frac{-2x}{-2} = \frac{-8}{-2}$$

$$x = 4$$

$$(13) \quad \frac{2}{5x} + \frac{1}{x} = 7$$

$$LCD = 5x$$

$$\frac{2}{5x}(5x) + \frac{1}{x}(5x) = \frac{7}{1}(5x)$$

$$2(1) + 1(5) = 7(5x)$$

$$2 + 5 = 35x$$

$$7 = 35x$$

$$\frac{7}{35} = \frac{35x}{35}$$

$$\frac{7}{35} = x$$

$$\frac{7(1)}{7(5)} = x$$

$$\frac{1}{5} = x$$

$$\begin{aligned} (14) \quad & -4x - 8 < -12 \\ & -4x - 8 + 8 < -12 + 8 \\ & -4x < -4 \\ & \frac{-4x}{-4} > \frac{-4}{-4} \end{aligned}$$

$$x > 1$$

$$(15) \quad \frac{x}{4} + \frac{3x}{8} > 5 \quad \text{LCD} = 8$$

$$\frac{x}{4}(8) + \frac{3x}{8}(8) > 5(8)$$

$$x(2) + 3x(1) > 5(8)$$

$$2x + 3x > 40$$

$$5x > 40$$

$$\frac{5x}{5} > \frac{40}{5}$$

$$x > 8$$

$$(16) \quad \text{Find } P \text{ if } P = 2(L + W), L = 10, W = 8$$

$$P = 2(L + W)$$

$$P = 2(10 + 8)$$

$$P = 2(18)$$

$$P = 36$$

$$(17) \quad \text{Find } f(4) \text{ if } f(x) = \frac{x-20}{x-5}$$

$$f(x) = \frac{x-20}{x-5}$$

$$f(4) = \frac{(4)-20}{(4)-5}$$

$$f(4) = \frac{4-20}{4-5}$$

$$f(4) = \frac{-16}{-1}$$

$$f(4) = 16$$



18) Find A if $A = \pi r^2$, $\pi = 3.14$, $r = 10$

$$A = \pi r^2$$

$$A = 3.14 (10)^2$$

$$A = 3.14 (10)(10)$$

$$A = 3.14 (100)$$

$$\begin{array}{r} 3.14 \\ \times 100 \\ \hline 314.00 \end{array}$$



$$A = 314.$$

19) Find C if $C = \frac{5}{9}(F - 32)$, $F = 68$

$$C = \frac{5}{9}(F - 32)$$

$$C = \frac{5}{9}(68 - 32)$$

$$C = \frac{5}{9}(36)$$

$$C = \frac{5}{1}(4)$$

$$C = 20$$

20) Find $f(-2)$ if $f(x) = -4x^2 - 3x + 10$

$$f(x) = -4x^2 - 3x + 10$$

$$f(-2) = -4(-2)^2 - 3(-2) + 10$$

$$f(-2) = -4(-2)(-2) - 3(-2) + 10$$

$$f(-2) = -4(4) - 3(-2) + 10$$

$$f(-2) = -16 + 6 + 10$$

$$f(-2) = -10 + 10$$

$$f(-2) = 0$$

(21) If $x = -7$ Evaluate $(x+9)(x+7)$

$$(x+9)(x+7) =$$
$$(-7+9)(-7+7) =$$

$$(2)(0) =$$

$$0 =$$

(22.) Find $f(3)$ if $f(x) = x^{-2}$

$$f(x) = x^{-2}$$

$$f(3) = 3^{-2}$$

$$f(3) = \frac{1}{3^2}$$

$$f(3) = \frac{1}{3 \times 3}$$

$$f(3) = \frac{1}{9}$$

(23) Find $f(2)$ if $f(x) = \frac{10x}{1-x}$

$$f(x) = \frac{10x}{1-x}$$

$$f(2) = \frac{10(2)}{1-(2)}$$

$$f(2) = \frac{20}{1-2}$$

$$f(2) = \frac{20}{-1}$$

$$f(2) = -20$$



(24) Find $f(-1)$ if $f(x) = \sqrt{x+5} + 3$

$$f(x) = \sqrt{x+5} + 3$$

$$f(-1) = \sqrt{-1+5} + 3$$

$$f(-1) = \sqrt{4} + 3$$

$$f(-1) = 2 + 3$$

$$f(-1) = 5$$

(25) Find $f(-8)$ if $f(x) = |8x-3|$

$$f(x) = |8x-3|$$

$$f(-8) = |8(-8)-3|$$

$$f(-8) = |-64-3|$$

$$f(-8) = |-67|$$

$$f(-8) = 67$$

(26) Find $Pr-r$ if $p = -5$, $r = \frac{1}{2}$

$$-5\left(\frac{1}{2}\right) - \left(\frac{1}{2}\right) =$$

$$-\frac{5}{1}\left(\frac{1}{2}\right) - \left(\frac{1}{2}\right) =$$

$$-\frac{5}{2} - \frac{1}{2} =$$

$$\frac{-5-1}{2} =$$

$$\frac{-6}{2} =$$

$$-3 =$$



(27) Find $f(\frac{1}{4})$ if $f(x) = \frac{1}{x} + \frac{8}{x}$

$$f(\frac{1}{4}) = \frac{1}{\frac{1}{4}} + \frac{8}{\frac{1}{4}}$$

$$f(\frac{1}{4}) = \frac{1}{\frac{1}{4}} + \frac{8}{\frac{1}{4}}$$

$$f(\frac{1}{4}) = \frac{1}{1} \cdot \frac{4}{1} + \frac{8}{1} \cdot \frac{4}{1}$$

$$f(\frac{1}{4}) = \frac{4}{1} + \frac{32}{1}$$

$$f(\frac{1}{4}) = 4 + 32$$

$$f(\frac{1}{4}) = 36$$

(28) Find the mean of 80, 90, 70, 95, 100

$$\begin{array}{r} 80 \\ 90 \\ 70 \\ 95 \\ + 100 \\ \hline 435 \end{array}$$

$$\begin{array}{r} 87 \\ 5 \overline{) 435} \\ \underline{-(40)} \\ 35 \\ \underline{-(35)} \\ 0 \end{array}$$

(29) Evaluate $2000(1.04)^2$

$$2000(1.04)(1.04) =$$

$$2000(1.0816) =$$

$$2163.200$$

$$\begin{array}{r} 1.04 \\ \times 1.04 \\ \hline 416 \\ 000 \\ 104 \\ \hline 1.0816 \end{array}$$

$$\begin{array}{r} 1.0816 \\ \times 2000 \\ \hline 2163.2000 \end{array}$$

30. simplify

$$\frac{a^{18}}{a^6} =$$

$$a^{18-6} =$$

$$a^{12} =$$



31. simplify

$$10a^3(ab^2 + b^2) =$$

$$10a^3(1a^1b^2 + 1b^2) =$$

$$10a^4b^2 + 10a^3b^2 =$$

32. simplify

$$\left(\frac{2}{x}\right)^3 =$$

$$\left(\frac{2}{x}\right)\left(\frac{2}{x}\right)\left(\frac{2}{x}\right) =$$

$$\frac{8}{x^3} =$$

33. simplify

$$\left(\frac{3x}{5y}\right)\left(\frac{125y^3}{27x}\right) =$$

$$\frac{3x}{5y} \cdot \frac{5 \cdot 5 \cdot 5 y y y}{3 \cdot 3 \cdot 3 x} =$$

$$\frac{25y^2}{9} =$$

Primes 2, 3, 5, 7

$$\begin{array}{r} 5 \overline{)125} \\ 5 \overline{)25} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$\begin{array}{r} 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ 1 \end{array}$$

$$125 = 5 \cdot 5 \cdot 5$$

$$27 = 3 \cdot 3 \cdot 3$$

34) Simplify

$$\frac{x + 8x^2}{x} =$$

$$\frac{x}{x} + \frac{8x^2}{x} =$$

$$\frac{x}{x} + \frac{8 \cdot \cancel{x} \cdot \cancel{x}}{\cancel{x}} =$$

$$1 + 8x =$$

35) Find N if $a^2 + N + 5b^2 = (a+b)(a+5b)$

$$a^2 + N + 5b^2 = (a+b)(a+5b)$$

$$= a^2 + 5ab + ab + 5b^2$$

$$= a^2 + 5ab + 1ab + 5b^2$$

$$= a^2 + 6ab + 5b^2$$

$$N = 6ab$$

36) Find V if $V = \pi r^2 h$, $r = 10a$, $h = 2a + 3$

$$V = \pi r^2 h$$

$$V = \pi (10a)^2 (2a + 3)$$

$$V = \pi (10a)(10a)(2a + 3)$$

$$V = \pi (100a^2)(2a + 3)$$

$$V = \pi (200a^3 + 300a^2)$$

$$V = 200\pi a^3 + 300\pi a^2$$

37. Find area

$$A = LW$$

$$A = (x+4)(2x-9)$$

$$A = 2x^2 - 9x + 8x - 36$$

$$A = 2x^2 - x - 36$$

$$A = 2x^2 - x - 36$$

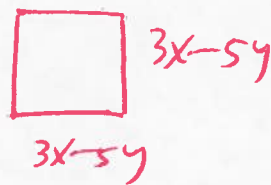


14

38. Find area of a square with a side of $3x-5y$

$$A = LW$$

$$A = (3x-5y)(3x-5y)$$



$$A = 9x^2 - 15xy - 15xy + 25y^2$$

$$A = 9x^2 - 30xy + 25y^2$$

39. If $2x^2 - 8 = k$ then $x^2 - 4 =$

$$2x^2 - 8 = k$$

$$\frac{2x^2}{2} - \frac{8}{2} = \frac{k}{2}$$

$$x^2 - 4 = \frac{k}{2}$$

40. Simplify

$$(3xy^7)^4 =$$

$$(3^1 x^1 y^7)^4 =$$

$$3^{1(4)} x^{1(4)} y^{7(4)} =$$

$$3^4 x^4 y^{28} =$$

$$3 \cdot 3 \cdot 3 \cdot 3 x^4 y^{28} =$$

$$81x^4y^{28} =$$

41) Simplify

$$\left(\frac{24k}{12}\right)^2 =$$

$$(2k)^2 =$$

$$(2k)(2k) =$$

$$4k^2 =$$

42) Simplify

$$p - 0.25p =$$

$$1.00p - 0.25p =$$

$$0.75p =$$

43) Find X

$$\frac{ax-b}{8a-1} = b$$

$$\frac{ax-b}{8a-1} = \frac{b}{1}$$

$$1(ax-b) = b(8a-1)$$

$$ax-b = 8ab-b$$

$$ax - \cancel{b} + \cancel{b} = 8ab - \cancel{b} + \cancel{b}$$

$$ax = 8ab$$

$$\frac{ax}{a} = \frac{8ab}{a}$$

$$x = 8b$$

Cross mult
↗



44.

simplify

$$\frac{20a^3b^4}{15a^7b^2} =$$

$$\frac{5(4)b^{4-2}}{5(3)a^{7-3}} =$$

$$\frac{4b^2}{3a^4} =$$

16

45.

simplify

$$(8x+5y)(8x-5y) =$$

$$64x^2 - 40xy + 40xy - 25y^2 =$$

$$64x^2 - 25y^2 =$$

46.

simplify

$$(5x-2y)(5x-2y) =$$

$$25x^2 - 10xy - 10xy + 4y^2 =$$

$$25x^2 - 20xy + 4y^2 =$$

47.

simplify

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

$$(6x-5y)(6x-5y) =$$

$$36x^2 - 30xy - 30xy + 25y^2 =$$

$$36x^2 - 60xy + 25y^2 =$$

48. Simplify

$$(x-1)(x+3) =$$

$$x^2 + 3x - 1x - 3 =$$

$$x^2 + 2x - 3 =$$



49. Factor

$$a^2 - b^2 = (a+b)(a-b)$$

$$x^2 - 81 =$$

$$(x)^2 - (9)^2 =$$

$$(x+9)(x-9) =$$

50. Factor

$$a^2 - b^2 = (a+b)(a-b)$$

$$x^2 - 25y^2 =$$

$$(x)^2 - (5y)^2 =$$

$$(x+5y)(x-5y) =$$

51. Factor

$$a^2 - b^2 = (a+b)(a-b)$$

$$\frac{25x^2}{9} - 64 =$$

$$\left(\frac{5x}{3}\right)^2 - (8)^2 =$$

$$\left(\frac{5x}{3} + 8\right)\left(\frac{5x}{3} - 8\right) =$$

52. Factor

$$a^2 - b^2 = (a+b)(a-b)$$

$$\frac{25x^2}{16} - \frac{9y^2}{49} =$$

$$\left(\frac{5x}{4}\right)^2 - \left(\frac{3y}{7}\right)^2 =$$

$$\left(\frac{5x}{4} + \frac{3y}{7}\right)\left(\frac{5x}{4} - \frac{3y}{7}\right) =$$

53.

Factor

$$\frac{x^2}{9} - \frac{y^2}{25} =$$

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

$$\left(\frac{x}{3} + \frac{y}{5}\right)\left(\frac{x}{3} - \frac{y}{5}\right) =$$

$$a^2 - b^2 = (a+b)(a-b)$$



54.

Factor

$$\frac{9x^2}{16} - \frac{49}{25} =$$

$$\left(\frac{3x}{4}\right)^2 - \left(\frac{7}{5}\right)^2 =$$

$$\left(\frac{3x}{4} + \frac{7}{5}\right)\left(\frac{3x}{4} - \frac{7}{5}\right) =$$

$$a^2 - b^2 = (a+b)(a-b)$$

55.

Factor

$$144x^2 - 25y^2 =$$

$$(12x)^2 - (5y)^2 =$$

$$(12x + 5y)(12x - 5y) =$$

$$a^2 - b^2 = (a+b)(a-b)$$

56.

Factor

$$x^2 + x - 12 =$$

$$(x - 3)(x + 4) =$$

$$\begin{array}{l} 1 \cdot 12 \\ 6 \cdot 2 \\ 3 \cdot 4 \end{array}$$

57.

Factor

$$x^2 - 10x + 16 =$$

$$(x - 2)(x - 8) =$$

$$\begin{array}{l} 16 \cdot 1 \\ 8 \cdot 2 \\ 4 \cdot 4 \end{array}$$

(58.)

Factor

$$x^2 + x - 2 =$$

(2.1)

$$(x-1)(x+2) =$$

(59.)

Factor

$$x^3 - x^2 - 6x =$$

6.1

2.3

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

$$x(x+2)(x-3) =$$

(60.)

Factor

$$2x^2 + 9x - 5 =$$

(2.1)

(5.1)

$$(2x-1)(x+5) =$$

(61.)

Factor

$$2x^2 + 9x - 18 =$$

(2.1)

18.1

2.9

3.6

$$(2x-3)(x+6) =$$

(62.)

Factor

$$3x^2 - 10x - 8 =$$

(3.1)

8.1

2.4

$$(3x+2)(x-4) =$$

(63.)

Factor

$$8x^2 - 9x + 1 =$$

8.1

2.4

(1.1)

$$(8x-1)(x-1) =$$

19

(64.)

Solve

$$x^2 + x - 12 = 0$$

$$(x-3)(x+4) = 0$$

12.1

3.4

6.2

$$\text{Let } x-3=0 \quad \text{OR} \quad x+4=0$$

$$x-3+3=0+3 \quad \text{OR} \quad x+4-4=0-4$$

$$x=3$$

$$\text{OR } x=-4$$

(65.)

Solve

$$x^2 - 10x = -16$$

$$x^2 - 10x + 16 = -16 + 16$$

$$x^2 - 10x + 16 = 0$$

$$(x-2)(x-8) = 0$$

$$\text{Let } x-2=0 \quad \text{OR} \quad x-8=0$$

$$x-2+2=0+2 \quad \text{OR} \quad x-8+8=0+8$$

$$x=2$$

$$\text{OR } x=8$$

16.1

2.8

4.4

(66.)

Solve

$$x^2 - 2 = -x$$

$$x^2 - 2 + x = -x + x$$

$$x^2 - 2 + x = 0$$

$$x^2 + x - 2 = 0$$

$$(x-1)(x+2) = 0$$

$$\text{Let } x-1=0 \quad \text{OR} \quad x+2=0$$

$$x-1+1=0+1 \quad \text{OR} \quad x+2-2=0-2$$

$$x=1$$

$$\text{OR } x=-2$$

1.2

20.

(67)

Solve

$$x^2 - 6 = x$$

$$x^2 - 6 - x = x - x$$

$$x^2 - 6 - x = 0$$

$$x^2 - x - 6 = 0$$

$$(x+2)(x-3) = 0$$

$$\text{Let } x+2=0 \text{ OR } x-3=0$$

$$x+2-2=0-2 \text{ OR } x-3+3=0+3$$

$$x = -2$$

$$\text{OR } x = 3$$

$$6.1$$

$$2.3$$

21

(68)

Solve

$$2x^2 + 9x - 5 = 0$$

$$(2x-1)(x+5) = 0$$

$$\text{Let } 2x-1=0 \text{ OR } x+5=0$$

$$2x-1+1=0+1 \text{ OR } x+5-5=0-5$$

$$2x = 1$$

$$\frac{2x}{2} = \frac{1}{2}$$

$$x = \frac{1}{2}$$

$$\text{OR } x = -5$$

$$2.1$$

$$1.5$$

(69)

Solve

$$2x^2 + 9x - 18 = 0$$

$$(2x-3)(x+6) = 0$$

$$\text{Let } 2x-3=0 \text{ OR } x+6=0$$

$$2x-3+3=0+3 \text{ OR } x+6-6=0-6$$

$$2x = 3$$

$$\frac{2x}{2} = \frac{3}{2}$$

$$\text{OR } x = -6$$

$$2.1$$

$$6.1$$

$$2.3$$

$$x = \frac{3}{2}$$

$$\text{OR } x = -6$$

70.

Solve

$$3x^2 - 10x = 8$$

$$3x^2 - 10x - 8 = 8 - 8$$

$$3x^2 - 10x - 8 = 0$$

$$(3x + 2)(x - 4) = 0$$

Set $3x + 2 = 0$ OR $x - 4 = 0$

$$3x + 2 - 2 = 0 - 2 \quad \text{OR} \quad x - 4 + 4 = 0 + 4$$

$$3x = -2$$

$$\frac{3x}{3} = \frac{-2}{3}$$

$$x = -\frac{2}{3}$$

$$\text{OR } x = 4$$

71.

Solve

$$8x^2 = 9x - 1$$

$$8x^2 - 9x + 1 = 0$$

$$(8x - 1)(x - 1) = 0$$

Set $8x - 1 = 0$ OR $x - 1 = 0$

$$8x - 1 + 1 = 0 + 1 \quad \text{OR} \quad x - 1 + 1 = 0 + 1$$

$$8x = 1$$

OR

$$x = 1$$

$$\frac{8x}{8} = \frac{1}{8}$$

$$x = \frac{1}{8}$$



72. Factor GCF

$$15y - 3 =$$

$$3(5y - 1) =$$

73. Factor GCF

$$15x^3y - 3x^2y^2 =$$

$$15x^3y^1 - 3x^2y^2 =$$

$$3x^2y(5x - y) =$$

74. Factor GCF

$$6x^3 + 15x^2 + 9xy^2 =$$

$$3x(2x^2 + 5x + 3y^2) =$$

75. Factor GCF

$$2x^3 - 10x^2 - 10x =$$

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

76. Solve

$$(x - 2)^2 = 25$$

$$\sqrt{(x - 2)^2} = \pm \sqrt{25}$$

$$x - 2 = \pm 5$$

$$x - 2 = -5$$

OR

$$x - 2 = 5$$

$$x - 2 + 2 = -5 + 2$$

OR

$$x - 2 + 2 = 5 + 2$$

$$x = -3$$

OR

$$x = 7$$



(77)

Solve

$$\frac{x}{5} = \frac{5}{x}$$

$$x(x) = 5(5)$$

$$x^2 = 25$$

$$\sqrt{x^2} = \pm\sqrt{25}$$

$$x = \pm 5$$

$$x = -5 \text{ OR } x = 5$$

24

(78)

Solve

$$\frac{x}{2} = \frac{1}{x}$$

$$x(x) = 2(1)$$

$$x^2 = 2$$

$$\sqrt{x^2} = \pm\sqrt{2}$$

$$x = \pm\sqrt{2}$$

$$x = -\sqrt{2} \text{ OR } x = \sqrt{2}$$

(79)

Solve

$$\sqrt{x-2} = 4$$

$$(\sqrt{x-2})^2 = (4)^2$$

$$x-2 = 16$$

$$x-2+2 = 16+2$$

$$x = 18$$

80

Solve

$$\sqrt{x} + 2 = 9$$

$$\sqrt{x} + 2 - 2 = 9 - 2$$

$$\sqrt{x} = 7$$

$$(\sqrt{x})^2 = (7)^2$$

$$x = 49$$



81

Solve

$$-4x^2(x-8) = 0$$

$$\text{Let } -4x^2 = 0 \quad \text{OR} \quad x - 8 = 0$$

$$\frac{-4x^2}{-4} = \frac{0}{-4}$$

$$\text{OR} \quad x - 8 + 8 = 0 + 8$$

$$x^2 = 0$$

$$\text{OR} \quad x = 8$$

$$\sqrt{x^2} = \sqrt{0}$$

$$x = 0$$

Solve

82

$$2x + 5y = 7$$

$$3x + 2y = 5$$

$$(2x + 5y = 7)(-2)$$

$$(3x + 2y = 5)(5)$$

$$-4x - 10y = -14$$

$$15x + 10y = 25$$

$$11x = 11$$

$$\frac{11x}{11} = \frac{11}{11}$$

$$x = 1$$

Subst

$$2x + 5y = 7$$

$$2(1) + 5y = 7$$

$$2 + 5y = 7$$

$$2 + 5y - 2 = 7 - 2$$

$$5y = 5$$

$$\frac{5y}{5} = \frac{5}{5}$$

$$y = 1$$

$$(x, y)$$

$$(1, 1)$$

83

graph

$$y = -2x - 4$$

$$y = -2(0) - 4$$

$$y = 0 - 4$$

$$y = -4$$

$$y = -2(1) - 4$$

$$y = -2 - 4$$

$$y = -6$$

x	y
0	-4
1	-6

26

