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**TSI 133 Multiple Choice**

1. Find  $f(2)$  if  $f(x) = 8000(1.04)^x$ 
  - (a)  $f(2) = 8152.60$
  - (b)  $f(2) = 8442.90$
  - (c)  $f(2) = 8652.80$
  - (d)  $f(2) = 8452.80$
  
2. Find  $C$  if  $C = \frac{5}{9}(F - 32)$  and  $F = 86$ 
  - (a)  $C = 10$
  - (b)  $C = 20$
  - (c)  $C = 30$
  - (d)  $C = 40$
  
3. Find  $y$  if  $y = 2x^2 - 4x - 6$  and  $x = -2$ 
  - (a)  $y = 40$
  - (b)  $y = 20$
  - (c)  $y = 10$
  - (d)  $y = 12$
  
4. Evaluate  $(x + 3)(x + 4)$  if  $x = -4$ 
  - (a) 12
  - (b) 4
  - (c) 0
  - (d) -4
  
5. Find  $P$  if  $P = 2(L + W)$ ,  $L = 6$ , and  $W = 2$ 
  - (a)  $p = 18$
  - (b)  $p = 10$
  - (c)  $p = 16$
  - (d)  $p = 12$
  
6. Find  $f(4)$  if  $f(x) = \frac{x + 18}{x - 3}$ 
  - (a)  $f(4) = 10$
  - (b)  $f(4) = 30$
  - (c)  $f(4) = 22$
  - (d)  $f(4) = 28$
  
7. Find  $C$  if  $C = P + 0.05P$  and  $P = 30$ 
  - (a)  $C = 40.60$
  - (b)  $C = 43.50$
  - (c)  $C = 31.50$
  - (d)  $C = 33.50$
  
8. Find  $h(2)$  if  $h(x) = -16x^2 + 32x$ 
  - (a)  $h(2) = 32$
  - (b)  $h(2) = 12$
  - (c)  $h(2) = 0$
  - (d)  $h(2) = 10$
  
9. Find  $y$  if  $y = 31.95x + 0.10m$ ,  $x = 5$ , and  $m = 200$ 
  - (a)  $y = 199.55$
  - (b)  $y = 166.55$
  - (c)  $y = 179.75$
  - (d)  $y = 189.75$
  
10. Find  $Pr - r$  if  $P = -9$  and  $r = \frac{1}{2}$

- (a) -6  
(c) -5

- (b) 6  
(d) 5

11. Find  $y$  if  $y = \sqrt{x+1} + 8$  and  $x = 0$

- (a)  $y = 2$   
(c)  $y = 9$

- (b)  $y = 7$   
(d)  $y = 4$

12. Find  $g(2)$  if  $g(x) = \frac{x}{1-x}$

- (a)  $g(2) = 0$   
(c)  $g(2) = -2$

- (b)  $g(2) = -4$   
(d)  $g(2) = 2$

13. Find  $f(-3)$  if  $f(x) = |x-2|$

- (a)  $f(-3) = 9$   
(c)  $f(-3) = 5$

- (b)  $f(-3) = 0$   
(d)  $f(-3) = 8$

14. Find  $f(-1)$  if  $f(x) = 4x^2$

- (a)  $f(-1) = -1$   
(c)  $f(-1) = 4$

- (b)  $f(-1) = -4$   
(d)  $f(-1) = 8$

15. Find  $f(-1)$  if  $f(x) = \frac{x-1}{x^2-9}$

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

- (b)  $f(-1) = 3$   
(d)  $f(-1) = \frac{1}{3}$

16. Find  $f(1)$  if  $f(x) = (x-1)^2 + 8$

- (a)  $f(1) = 4$   
(c)  $f(1) = 8$

- (b)  $f(1) = 12$   
(d)  $f(1) = 10$

17. Find  $5^{-2}$

- (a) -10  
(c)  $\frac{1}{25}$

- (b) -25  
(d)  $-\frac{1}{25}$

18. Find  $A$  if  $A = \pi r^2$  if  $\pi = 3.14$  and  $r = 4$

- (a)  $A = 80.24$   
(c)  $A = 50.24$

- (b)  $A = 70.24$   
(d)  $A = 60.24$

19. Find  $x - y$  if  $x = \frac{1}{4}$  and  $y = -x$

(a)  $\frac{1}{3}$

(b)  $-\frac{1}{3}$

(c)  $\frac{1}{2}$

(d)  $-\frac{1}{2}$

20. Find the average of 2800, 1800, 1000, 1400, and 2300

(a) 1460

(b) 1760

(c) 1860

(d) 1960

21. Solve  $4x + 1 = 10$

(a)  $x = -\frac{9}{4}$

(b)  $x = \frac{1}{4}$

(c)  $x = \frac{9}{4}$

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

22. Solve  $1 + \frac{6}{x} = -23$

(a)  $x = \frac{1}{8}$

(b)  $x = \frac{1}{3}$

(c)  $x = -\frac{1}{4}$

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

23. Find  $y$  if  $3x + 2y = 90$  and  $x = 10$

(a)  $y = 40$

(b)  $y = 20$

(c)  $y = 30$

(d)  $y = 10$

24. Solve  $\frac{3}{2}x + 1 = 5$

(a)  $x = \frac{5}{3}$

(b)  $x = \frac{2}{3}$

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

(d)  $x = \frac{1}{3}$

25. Solve  $7x - 2 = 5 + 3x$

(a)  $x = \frac{3}{4}$

(b)  $x = 4$

(c)  $x = \frac{7}{4}$

(d)  $x = \frac{1}{4}$

26. Solve  $6x + 12 = 2x$

(a)  $x = 5$

(b)  $x = 4$

(c)  $x = -3$

(d)  $x = 3$

27. Find  $c$  if  $k = c + 294$  and  $k = 10$

(a)  $c = 204$

(b)  $c = 104$

(c)  $c = -284$

(d)  $c = 284$

28. Solve  $8 - x = 2(x - 8)$

(a)  $x = 6$

(b)  $x = 3$

(c)  $x = 8$

(d)  $x = 4$

29. Solve  $\frac{x}{9} = \frac{x+1}{10}$

(a)  $x = 0$

(b)  $x = 1$

(c)  $x = 9$

(d)  $x = 4$

30. If  $2x + 1 = 4$ , find  $12x$

(a) 10

(b) 12

(c) 18

(d) 16

31. Solve  $3 = \frac{12-x}{x}$

(a)  $x = 1$

(b)  $x = 6$

(c)  $x = 3$

(d)  $x = 4$

32. Find  $a$  if  $ax - 25 = x + 2$  and  $x = 3$

(a)  $a = 3$

(b)  $a = 4$

(c)  $a = 10$

(d)  $a = 2$

33. Solve  $6(x - 2) - 20 = 2x$

(a)  $x = 0$

(b)  $x = 3$

(c)  $x = 8$

(d)  $x = 9$

34. Solve  $5x = 12 + 2x$

(a)  $x = 1$

(b)  $x = 2$

(c)  $x = 4$

(d)  $x = 9$

35. Solve  $x - 8 = 3x - 8$

(a)  $x = 1$

(b)  $x = 3$

(c)  $x = 0$

(d)  $x = 2$

36. Solve  $x - 8 = 8 - x$

- (a)  $x = 3$   
(c)  $x = 8$

- (b)  $x = 7$   
(d)  $x = 4$

37. Solve  $3x = 2(x + 8)$

- (a)  $x = 2$   
(c)  $x = 16$

- (b)  $x = 18$   
(d)  $x = 17$

38. Solve  $\frac{2}{5x} + \frac{1}{x} = 14$

- (a)  $x = 5$   
(c)  $x = \frac{1}{10}$

- (b)  $x = 3$   
(d)  $x = \frac{3}{10}$

39. If  $2x + 1 = 4$ , find  $x + 2$

- (a) 2  
(c)  $\frac{7}{2}$

- (b) 3  
(d)  $\frac{3}{2}$

40. If  $4x - 1 = x$ , find  $30x$

- (a) 40  
(c) 10

- (b) 12  
(d) 11

41. Solve  $-2x < 8$

- (a)  $x > 4$   
(c)  $x > -4$

- (b)  $x < 4$   
(d)  $x < -4$

42. Solve  $2x < -6$

- (a)  $x > 2$   
(c)  $x < -3$

- (b)  $x < 2$   
(d)  $x > -3$

43. Solve  $\frac{x}{4} + \frac{3x}{8} > 20$

- (a)  $x < 8$   
(c)  $x > 32$

- (b)  $x > -32$   
(d)  $x < 32$

44. If  $xy = k$  and  $x = 2$  when  $y = 10$ , then find  $x$  when  $y = 5$

- (a)  $x = 3$   
(c)  $x = 4$

- (b)  $x = 1$   
(d)  $x = 2$

45. Simplify  $\left(\frac{12}{x}\right)^2$

(a)  $144x^2$

(b)  $12x^2$

(c)  $\frac{144}{x^2}$

(d)  $\frac{12}{x^2}$

46. Simplify  $\left(\frac{5}{x}\right)^3$

(a)  $25x^3$

(b)  $\frac{5}{x^3}$

(c)  $\frac{125}{x^3}$

(d)  $\frac{25}{x^3}$

47. Simplify  $\left(\frac{6k}{2}\right)^2$

(a)  $36k^2$

(b)  $3k^2$

(c)  $9k^2$

(d)  $9k$

48. Simplify  $p - 0.12p$

(a)  $0.08p$

(b)  $0.90p$

(c)  $0.88p$

(d)  $0.80p$

49. Simplify  $(3x - 2)(x + 5)$

(a)  $3x^2 + 13x + 10$

(b)  $3x^2 - 13x - 10$

(c)  $3x^2 + 13x - 10$

(d)  $3x^2 - 13x + 10$

50. Simplify  $(2a - b)(2a + b)$

(a)  $4a^2 + 4ab - b^2$

(b)  $4a^2 - 4ab - b^2$

(c)  $4a^2 - b^2$

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

51. Simplify  $(2a - b)^2$

(a)  $4a^2 + 4ab + b^2$

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

(c)  $4a^2 - 4ab + b^2$

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

52. Simplify  $4a^2(ab^2 + b^2)$

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

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

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

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

53.  $(2xy^2)(4x^3y^4)$

- |               |               |
|---------------|---------------|
| (a) $10xy^6$  | (b) $2x^4y^6$ |
| (c) $8x^4y^6$ | (d) $4x^4y^6$ |

54.  $(2xy^4)^2$

- |               |                |
|---------------|----------------|
| (a) $8x^2y^6$ | (b) $16x^2y^8$ |
| (c) $4x^2y^8$ | (d) $2xy^8$    |

55.  $(3 + ax)(2x - 1)$

- |                            |                           |
|----------------------------|---------------------------|
| (a) $-6x + 3 + 2ax^2 + ax$ | (b) $6x + 3 + 2ax^2 + ax$ |
| (c) $6x - 3 + 2ax^2 - ax$  | (d) $6x - 3 - 2ax^2 - ax$ |

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

- |                                 |                                 |
|---------------------------------|---------------------------------|
| (a) $V = 9\pi a^3 + 7\pi a^2$   | (b) $V = 18\pi a - 27\pi a^2$   |
| (c) $V = 18\pi a^3 + 27\pi a^2$ | (d) $V = 18\pi a^2 + 27\pi a^5$ |

57. Find  $N$  if  $a^2 + N + 6b^2 = (a + b)(a + 6b)$

- |               |               |
|---------------|---------------|
| (a) $N = 3ab$ | (b) $N = 2ab$ |
| (c) $N = 7ab$ | (d) $N = 6ab$ |

58. Find  $C$  if  $(3x - 2)(4x + C) = 12x^2 + 7x - 10$

- |             |             |
|-------------|-------------|
| (a) $C = 8$ | (b) $C = 7$ |
| (c) $C = 5$ | (d) $C = 6$ |

59. Factor GCF  $6x^3 - 18x^2 + 6x$

- |                         |                         |
|-------------------------|-------------------------|
| (a) $6x(x^2 + 7x + 11)$ | (b) $6x(x^2 - 3x + 11)$ |
| (c) $6x(x^2 - 3x + 1)$  | (d) $6x(x^2 - 3x - 1)$  |

60. Factor GCF  $4x^3y - 2x^2y^2$

- |                       |                     |
|-----------------------|---------------------|
| (a) $2x^2y^3(2x - y)$ | (b) $2xy(2x + y)$   |
| (c) $2x^2y(2x - y)$   | (d) $2x^2y(2x + y)$ |

61. Factor GCF  $4y - 2$

- |                  |                 |
|------------------|-----------------|
| (a) $2(2y + 11)$ | (b) $2(2y + 3)$ |
| (c) $2(2y - 1)$  | (d) $2(2y + 1)$ |

62. If  $2x^2 - 4 = m$ , then find  $x^2 - 2$

(a)  $x^2 - 2 = \frac{m}{5}$

(c)  $x^2 - 2 = \frac{m}{2}$

(b)  $x^2 - 2 = \frac{m}{11}$

(d)  $x^2 - 2 = \frac{m}{3}$

63. Factor  $a^2 - b^2$

(a)  $(a + b)(a + 2b)$

(c)  $(a + b)(a - b)$

(b)  $(a - b)(a - b)$

(d)  $(a + b)(a + b)$

64. Factor  $x^2 - 25$

(a)  $(x + 5)(x + 15)$

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

(b)  $(x + 5)(x + 5)$

(d)  $(x - 5)(x - 5)$

65. Factor  $x^2 - 25y^2$

(a)  $(x + 5y)(x + 11y)$

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

(b)  $(x + 5y)(x + 5y)$

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

66. Factor  $100x^2 - 9y^2$

(a)  $(10x + 3y)(10x + y)$

(c)  $(10x + 3y)(10x - 3y)$

(b)  $(10x + 3y)(10x + 3y)$

(d)  $(10x - 3y)(10x - 3y)$

67. Factor  $\frac{x^2}{9} - 64$

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

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

(b)  $\left(\frac{x}{3} + 8\right)\left(\frac{x}{3} + 8\right)$

(d)  $\left(\frac{x}{3} - 8\right)\left(\frac{x}{3} - 8\right)$

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

(a)  $(3x + 5y)(3x - 5y)$

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

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

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

69. Factor GCF  $8x^3 + 14x^2 + 12xy$

(a)  $2x(4x^2 - 7x - 6y)$

(c)  $2x(4x^2 + 7x + 6y)$

(b)  $2x(4x^2 + 11x + 6y)$

(d)  $2x(4x^2 + 3x + y)$

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70. Simplify  $\frac{x+x^2}{x}$

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

71. Simplify  $\frac{ab+b}{b}$

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

72. Simplify  $\frac{5xy+y}{y}$

- (a)  $2x + 1$       (b)  $3x + 1$   
(c)  $5x + 1$       (d)  $5x - 1$

73. Simplify  $\frac{8n+4}{4}$

- (a)  $2n + 5$       (b)  $3n + 1$   
(c)  $2n + 1$       (d)  $2n - 1$

74. Solve  $2x(x + 5) = 0$

- (a)  $\{-2, 5\}$       (b)  $\{2, 5\}$   
(c)  $\{0, -5\}$       (d)  $\{0, 5\}$

75. Solve  $x^2 + 8x + 12 = 0$

- (a)  $\{1, -6\}$       (b)  $\{2, 6\}$   
(c)  $\{-2, -6\}$       (d)  $\{-2, 6\}$

76. Solve  $x^2 + 6x + 8 = 0$

- (a)  $\{1, 4\}$       (b)  $\{2, 4\}$   
(c)  $\{-2, -4\}$       (d)  $\{-2, 4\}$

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

- (a)  $\{3, 7\}$       (b)  $\{-3, -4\}$   
(c)  $\{3, -4\}$       (d)  $\{3, 4\}$

78. Solve  $x^2 - x - 2 = 0$

- (a)  $\{1, 3\}$       (b)  $\{1, 2\}$   
(c)  $\{-1, 2\}$       (d)  $\{-1, -2\}$

79. Solve  $x^2 - 12 = x$

(a)  $\{3, 6\}$

(b)  $\{-3, -4\}$

(c)  $\{-3, 4\}$

(d)  $\{3, 4\}$

80. Solve  $x^2 - 6x = -8$ 

(a)  $\{2, 8\}$

(b)  $\{-2, -4\}$

(c)  $\{2, 4\}$

(d)  $\{-2, 4\}$

81. Solve  $2x^2 + 5x - 12 = 0$ 

(a)  $\left\{-\frac{7}{2}, -4\right\}$

(b)  $\left\{\frac{1}{2}, 4\right\}$

(c)  $\left\{\frac{3}{2}, -4\right\}$

(d)  $\left\{-\frac{3}{2}, -4\right\}$

82. Solve  $3x^2 + 13x = 10$ 

(a)  $\{-3, 5\}$

(b)  $\left\{\frac{2}{3}, 5\right\}$

(c)  $\left\{\frac{2}{3}, -5\right\}$

(d)  $\left\{-\frac{2}{3}, -5\right\}$

83. Solve  $2x^2 = -7x - 3$ 

(a)  $\{-2, -3\}$

(b)  $\left\{\frac{1}{2}, 3\right\}$

(c)  $\left\{-\frac{1}{2}, -3\right\}$

(d)  $\left\{-\frac{1}{2}, 3\right\}$

84. Solve  $8x^2 - 1 = 7x$ 

(a)  $\left\{\frac{7}{8}, 1\right\}$

(b)  $\{-8, 1\}$

(c)  $\left\{-\frac{1}{8}, 1\right\}$

(d)  $\left\{-\frac{1}{8}, -1\right\}$

85. Solve  $2x^2 + 5x - 3 = 0$ 

(a)  $\left\{\frac{1}{3}, \frac{1}{2}\right\}$

(b)  $\left\{-3, -\frac{1}{2}\right\}$

(c)  $\left\{-3, \frac{1}{2}\right\}$

(d)  $\left\{3, \frac{1}{2}\right\}$

86. Solve  $x^2 + 8x + 11 = 0$  (use Quadratic formula)

(a)  $\{1, 11\}$

(b)  $\{-7 - \sqrt{5}, -7 + \sqrt{5}\}$

(c)  $\{-4 - \sqrt{5}, -4 + \sqrt{5}\}$

(d)  $\{-4 - \sqrt{2}, -4 + \sqrt{2}\}$

87. Solve  $x^2 + 2x + 10 = 0$  (use Quadratic Formula)

- (a)  $\{-5 - 3i, -5 + 3i\}$       (b)  $\{2 - 3i, 2 + 3i\}$   
 (c)  $\{-1 - 3i, -1 + 3i\}$       (d)  $\{1 - 3i, 1 + 3i\}$
88. Solve  $(x - 2)^2 = 25$
- (a)  $\{2, 25\}$       (b)  $\{3, 7\}$   
 (c)  $\{-3, 7\}$       (d)  $\{-3, -7\}$
89. Solve  $(x + 2)^2 = 7$
- (a)  $\{-5 - \sqrt{3}, -5 + \sqrt{3}\}$       (b)  $\{3 + \sqrt{2}, 3 - \sqrt{2}\}$   
 (c)  $\{-2 - \sqrt{7}, -2 + \sqrt{7}\}$       (d)  $\{2 - \sqrt{7}, 2 + \sqrt{7}\}$
90. Solve  $(x - 2)^2 - 5 = 0$
- (a)  $\{-5, 5\}$       (b)  $\{2, 5\}$   
 (c)  $\{2 - \sqrt{5}, 2 + \sqrt{5}\}$       (d)  $\{2 - \sqrt{3}, 2 + \sqrt{3}\}$
91. Solve  $\sqrt{x + 1} = 5$
- (a)  $x = 18$       (b)  $x = 14$   
 (c)  $x = 24$       (d)  $x = 20$
92. Solve  $\sqrt{x} + 3 = 10$
- (a)  $x = 50$       (b)  $x = 14$   
 (c)  $x = 49$       (d)  $x = 7$
93. Solve  $\frac{3}{x} = \frac{x}{12}$
- (a)  $\{3, 12\}$       (b)  $\{-3, 3\}$   
 (c)  $\{-6, 6\}$       (d)  $\{-4, 4\}$
94. Solve  $\frac{1}{x} = \frac{x}{5}$
- (a)  $\{1, -5\}$       (b)  $\{-5, 5\}$   
 (c)  $\{-\sqrt{5}, \sqrt{5}\}$       (d)  $\{-\sqrt{3}, \sqrt{3}\}$
95. Solve  $7x^2 = 1$
- (a)  $\{-\sqrt{7}, \sqrt{7}\}$       (b)  $\left\{-\sqrt{\frac{1}{3}}, \sqrt{\frac{1}{3}}\right\}$   
 (c)  $\left\{-\sqrt{\frac{1}{7}}, \sqrt{\frac{1}{7}}\right\}$       (d)  $\left\{-\frac{1}{7}, \frac{1}{7}\right\}$
96. Solve for  $r$ ,  $A = \pi r^2$

(a)  $r = \pi\sqrt{3A}$

(b)  $r = \sqrt{\pi A}$

(c)  $r = \sqrt{\frac{A}{\pi}}$

(d)  $r = \pi A$

97. If the area of a square is 100 and each side has a length of  $2x$ , then find  $x$ .

(a)  $x = 2$

(b)  $x = 10$

(c)  $x = 5$

(d)  $x = 6$

98. Solve  $\begin{array}{rcl} 3x + y & = & 7 \\ 5x - y & = & 9 \end{array}$

(a)  $(x, y) = (-2, 7)$

(b)  $(x, y) = (5, 9)$

(c)  $(x, y) = (2, 1)$

(d)  $(x, y) = (-2, -1)$

99. Solve  $\begin{array}{rcl} x + 2y & = & 7 \\ x - 2y & = & 3 \end{array}$

(a)  $(x, y) = (-2, 7)$

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

(c)  $(x, y) = (5, 1)$

(d)  $(x, y) = (-5, -1)$

100. Solve  $\begin{array}{rcl} x - y & = & 20 \\ x & = & 3y \end{array}$

(a)  $(x, y) = (1, 10)$

(b)  $(x, y) = (10, 30)$

(c)  $(x, y) = (30, 10)$

(d)  $(x, y) = (10, 40)$

101. Solve  $\begin{array}{rcl} x - 2y & = & 4 \\ x - 2y & = & 5 \end{array}$

(a)  $(x, y) = (4, 5)$

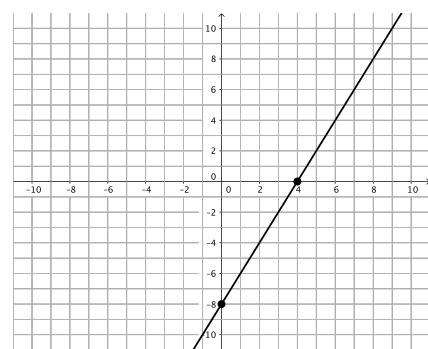
(b)  $(x, y) = (-4, -5)$

(c) No Solution

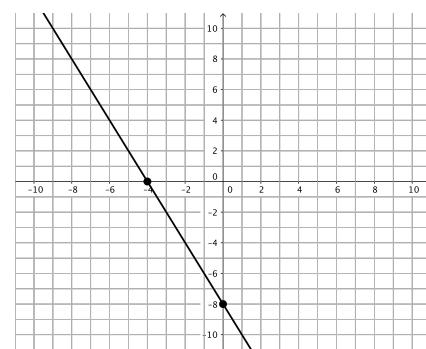
(d)  $(x, y) = (1, 9)$

102. Graph  $y = -2x + 8$

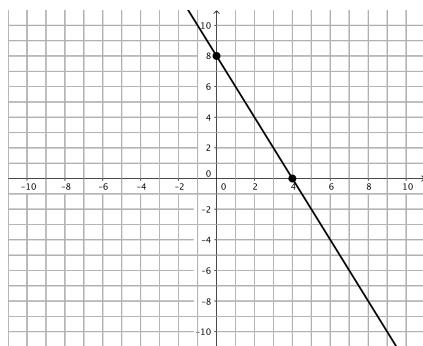
(a)



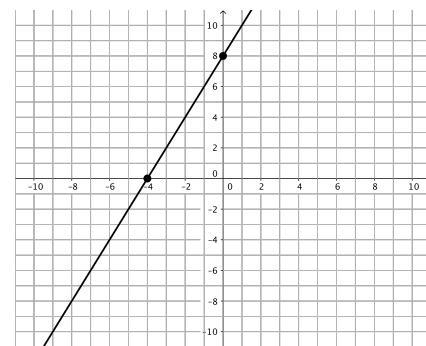
(b)



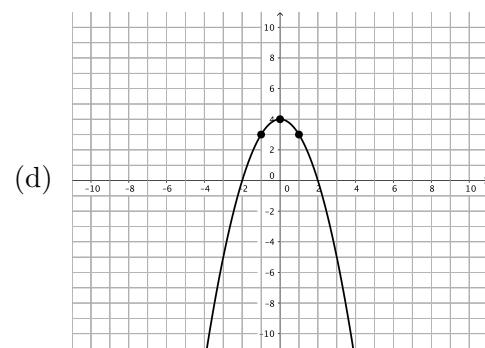
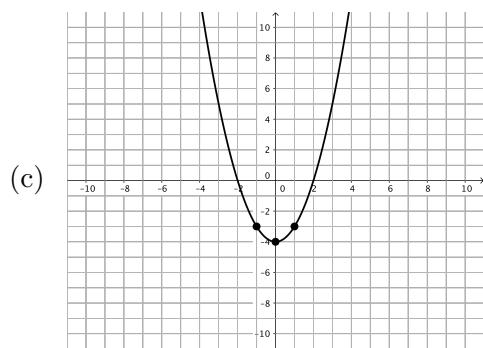
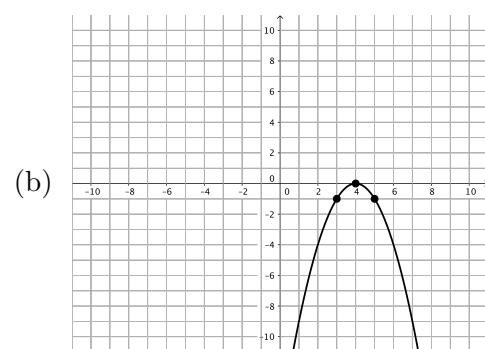
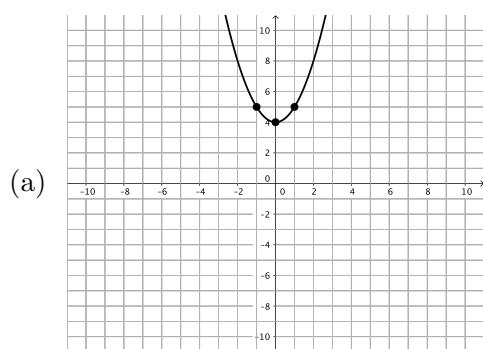
(c)



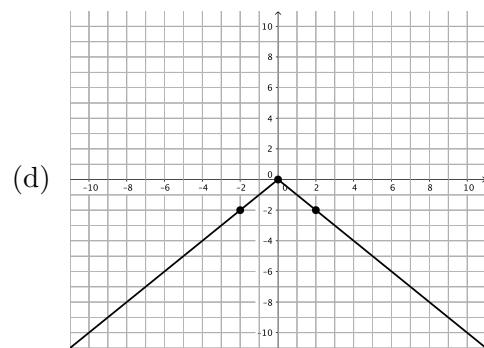
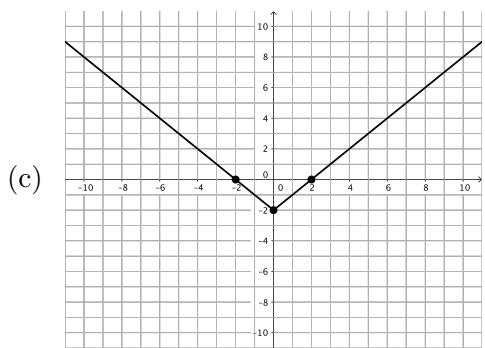
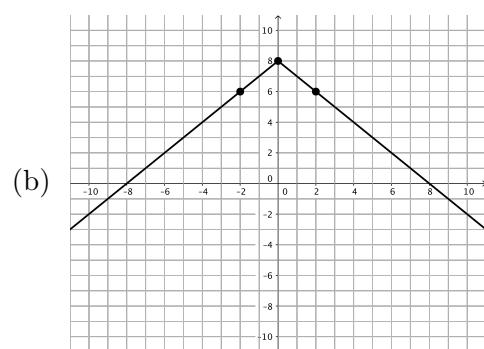
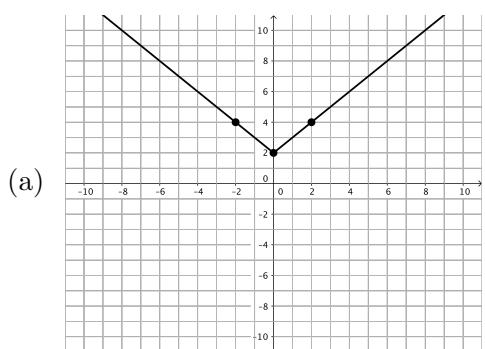
(d)



103. Graph  $y = x^2 - 4$



104. Graph  $y = |x| - 2$



105. Simplify  $\left(\frac{2x}{3y}\right)\left(\frac{9y}{8x^2}\right)$

(a)  $3x$

(b)  $\frac{3y}{4x}$

(c)  $\frac{3}{4x}$

(d)  $\frac{9}{4x}$

106. Solve  $x^3 + 6x^2 + 8x = 0$

(a)  $\{0, -2, 4\}$

(b)  $\{0, 2, 4\}$

(c)  $\{0, -2, -4\}$

(d)  $\{1, -2, -4\}$

107. Solve  $4^3 = 2^k$

(a)  $k = 2$

(b)  $k = 3$

(c)  $k = 6$

(d)  $k = 4$

108. If a box has 5 red, 3 green, and 4 blue jelly beans, then what is the probability of choosing at random a red jelly bean?

(a)  $\frac{7}{12}$

(b)  $\frac{1}{12}$

(c)  $\frac{5}{12}$

(d)  $\frac{2}{7}$

109. If on a map 1 inch equals 10 miles, then 30 inches equals how many miles?

(a) 3000

(b) 100

(c) 300

(d) 200

110. Find  $f\left(\frac{1}{4}\right)$  if  $f(x) = \frac{1}{x} + \frac{3}{x}$ .

(a)  $f\left(\frac{1}{4}\right) = 18$

(b)  $f\left(\frac{1}{4}\right) = \frac{1}{8}$

(c)  $f\left(\frac{1}{4}\right) = 16$

(d)  $f\left(\frac{1}{4}\right) = 10$

111. Solve for  $x$ ,  $\frac{ax - b}{4a - 1} = b$

(a)  $x = 5b$

(b)  $x = 8b$

(c)  $x = 4b$

(d)  $x = 3b$

112. If the side of a square is  $3x$  and the area is 900, then find  $x$ .

(a)  $x = 4$

(b)  $x = 2$

(c)  $x = 10$

(d)  $x = 100$

113. If the perimeter of a rectangle is 160 and the width is 30, then find the area of the rectangle.

(a) area = 300

(b) area = 3000

(c) area = 1500

(d) area = 150

114. Find  $f(8)$  if  $f(x) = \frac{\sqrt{x}}{2}$

(a)  $f(8) = 4$

(b)  $f(8) = 2$

(c)  $f(8) = \sqrt{2}$

(d)  $f(8) = 2\sqrt{2}$

115. Solve  $100 = 80 + \frac{x}{2}$

(a)  $x = 180$

(b)  $x = 80$

(c)  $x = 40$

(d)  $x = 20$

116. Solve  $\frac{60x}{20} = 18$

(a)  $x = 3$

(b)  $x = 5$

(c)  $x = 6$

(d)  $x = 7$

117. Simplify  $\frac{a^6b^7}{a^2b^9}$

(a)  $a^4b^4$

(b)  $a^3b^2$

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

(d)  $\frac{a^5}{b^2}$

118. Solve  $\begin{aligned} x + y &= 9 \\ 3x + 4y &= 28 \end{aligned}$

(a)  $(x, y) = (5, 4)$

(b)  $(x, y) = (4, 4)$

(c)  $(x, y) = (8, 1)$

(d)  $(x, y) = (6, 3)$

119. Solve  $x^2 + 6x - 16 = 0$

(a)  $\{2, 8\}$

(b)  $\{-1, 16\}$

(c)  $\{2, -8\}$

(d)  $\{-2, -8\}$

120. Solve  $2(x^2 - 6) = 60$

(a)  $\{2, 6\}$

(b)  $\{-6, 1\}$

(c)  $\{-6, 6\}$

(d)  $\{6\}$

121. Solve  $2(12x^2 + 7x) = 24$

(a)  $\left\{ \frac{4}{3}, -\frac{3}{4} \right\}$

(b)  $\left\{ -\frac{4}{3}, -\frac{3}{4} \right\}$

(c)  $\left\{ -\frac{4}{3}, \frac{3}{4} \right\}$

(d)  $\left\{ \frac{4}{3}, \frac{3}{4} \right\}$

122. Solve  $2x + 40 < x$

(a)  $x < 40$

(b)  $x < 20$

(c)  $x < -40$

(d)  $x < -20$

123. If a big hog weighs 8 pounds more than a little hog and 3 times the weight of the little hog equals 2 times the weight of the big hog, then find the weight of the little hog.

(a) 10

(b) 24

(c) 16

(d) 8

124. Solve  $x^2 - x = 12$

(a)  $\{3, -4\}$

(b)  $\{3, 4\}$

(c)  $\{-3, 4\}$

(d)  $\{-3, -4\}$

125. Solve  $x^2 - 16 = 6x$

(a)  $\{2, -8\}$

(b)  $\{2, 8\}$

(c)  $\{-2, 8\}$

(d)  $\{-2, -8\}$

126. Solve  $x(x - 6) = 7$

(a)  $\{1, -7\}$

(b)  $\{1, 7\}$

(c)  $\{-1, 7\}$

(d)  $\{-1, -7\}$

127. Find a common factor for  $3y^3 + 2y^2$  and  $6y^4 + 4y^3$ .

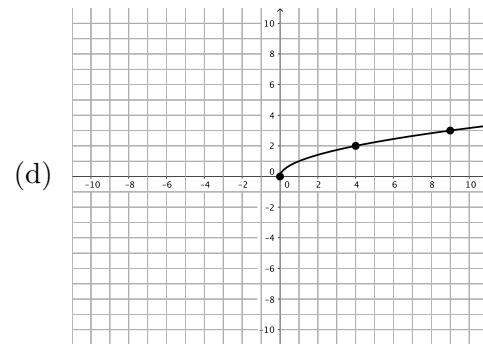
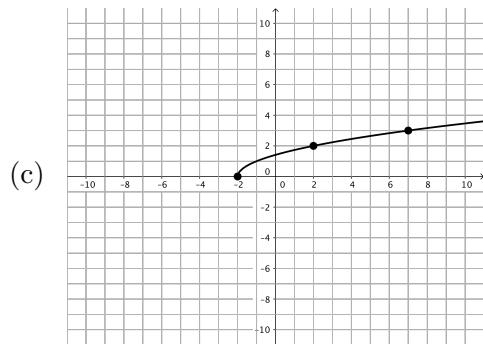
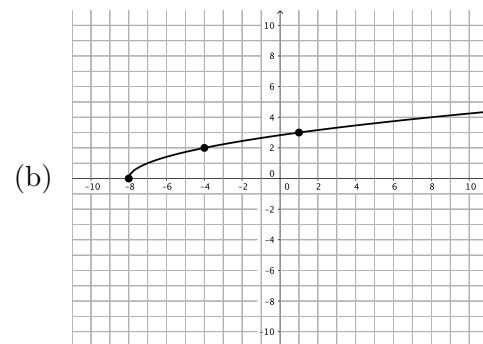
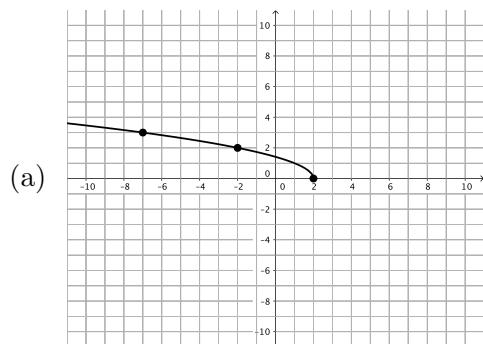
(a)  $3y + 5$

(b)  $y + 2$

(c)  $3y + 2$

(d)  $3y + 1$

128. Graph  $y = \sqrt{x + 2}$



129. Find the average of  $a$ ,  $b$ ,  $c$ , and  $d$ .

$$\begin{array}{c} a \\ \diagup \\ d \\ \hline c \end{array}$$

- (a) 45  
(c) 90

- (b) 60  
(d) 180

130. For what values is  $f(x) = \frac{x-1}{x^2-4}$  undefined?

- (a)  $\{0, 1\}$   
(c)  $\{-2, 2\}$

- (b)  $\{1, -1\}$   
(d)  $\{-4, 4\}$

131. Solve for  $x$  and  $y$

$$\begin{array}{l} x + 3y = 5 \\ 2x - y = 3 \end{array}$$

- (a)  $(x, y) = (2, -1)$   
(c)  $(x, y) = (2, 1)$

- (b)  $(x, y) = (-2, 1)$   
(d)  $(x, y) = (-2, -1)$

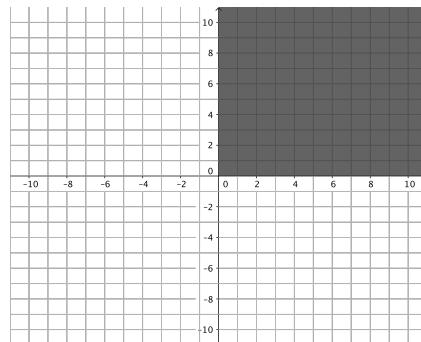
132. Find the average of  $a$  and  $b$ .

$$\begin{array}{c} a \\ \diagup \\ b \end{array}$$

- (a) 60  
(c) 90

- (b) 45  
(d) 180

133. If point  $(a, b)$  is in the shaded area, then



- (a)  $a < 0$  and  $b > 0$       (b)  $a > 0$  and  $b < 0$   
(c)  $a > 0$  and  $b > 0$       (d)  $a < 0$  and  $b < 0$