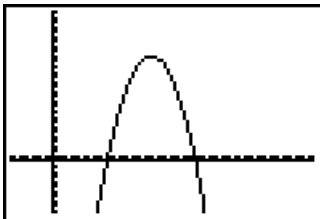


Math 142 Solutions to Sample Exam I (A, B, C, and D)

Sample Exam A: a star (*) by the problem indicates that it comes from Chapter 2

Multiple
Choice

Work Out:

1. A
 2. B
 3. C
 4. D
 5. C
 6. B
 7. A
 8. D
 9. * C
 10. * B
 11. C
1. a) parent function is x^3 . It was shifted up 1 unit, left 2 units, expanded by a factor of 3, and reflected about the x -axis.
b) parent function is e^x . It was shifted right 3 units and expanded by a factor of 2.
 2. * (Ch.2)
 - a) $y = 0$
 - b) $x = -2$
 - c) $x = -3, -2, 1, 2$
 - d) DNE (does not exist)
 - e) 0
 3. the gadget problem
 - a) $C(x) = 2x + 800$
 - b) $R(x) = -\frac{1}{50}x^2 + 11x$
 - c) $P(x) = -\frac{1}{50}x^2 + 9x - 800$
 - d)
 - e) sell 225 gadgets
 - f) max profit is \$212.50
 - g) sell at \$6.50 each
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Sample Exam B:

1. -2
 2. A
 3. 7
 4. B
 5. 1.097
 6. 5.294
 7. 7
 8. 7
 9. $\frac{4}{3}$
 10. 1
 11. 2.25
 12. -1.5
 13. $\log 3 + 4 \approx 4.477$
 14. $x \geq 1, x \neq 2$ or $[1, 2) \cup (2, \infty)$
 15. \$250
 16. \$3900.04
 17. quadreg
 - a) $y = .47x^2 - 3.91x + 8.09$
 - b) $y \approx 1.51$
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Sample Exam C:

1. (multiple choice)
 - a) B
 - b) A
 - c) no graph ?
 - d) C
 - e) C
 - f) D
 - g) E
 - h) A
 2. (fill in blanks)
 - a) $y = \frac{4}{3}x - 8$; 6
 - b) 3
 - c) 1.791
 - d) $\sqrt{x-3}$, $D = x \geq 3$ or $[3, \infty)$
 $\sqrt{x-1} + \sqrt{9-x}$, $D = [1, 9]$
 $\sqrt{\frac{x-1}{9-x}}$, $D = [1, 9)$
 $\sqrt{x^3-1}$, $D = [1, \infty)$
 3. regression problem
 - a) cubic; r^2 is closest to one.
 - b) to extrapolate, use logarithmic model, as it shows the expected flattening of sales.
 4. $\log\left(\frac{x^2 y^3}{z^{3/2} w^4}\right)$
 5. Revenue maximized when $x = 30$; max revenue is \$720 (vertex is at (30, 720).)
 6. demand eqn: $p = -\frac{1}{15}x + 12$; 102 units sold when $p = 5.2$. x is the number of units and p is the price per unit.
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Sample Exam D:

Multiple Choice

1. C
 2. B
 3. A
 4. D
 5. C
 6. B
 7. B
 8. A
 9. D
 10. B
 11. D
 12. C
 13. D
 14. B
 15. E
 16. E
- (at high temperatures, model must be decreasing.)

Work Out

17. $-2 \pm \sqrt{6}$, or approximately 0.4495 and -4.4495
18. (this is complete the square) $y = 2(x+2)^2 - 12$
19. $x = 3$
20. piecewise function: should be OPEN circles at (0,0) and (1,1)

