

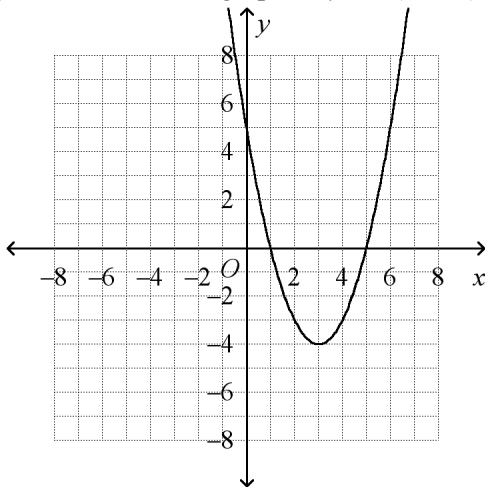
Alg 2, Chap 5 Practice Test, EV Ver 1

Multiple Choice

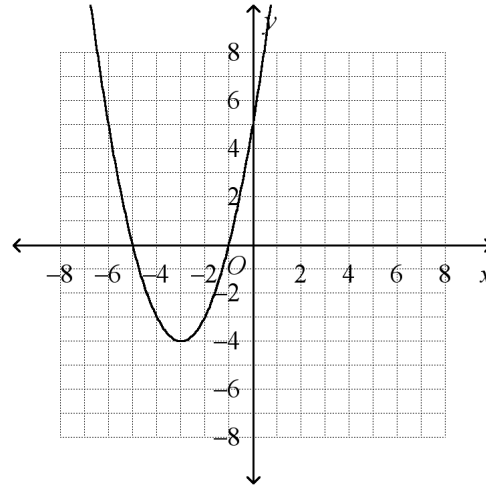
Identify the choice that best completes the statement or answers the question.

_____ 1. (5-3) Which is the graph of $y = (x - 3)^2 - 4$?

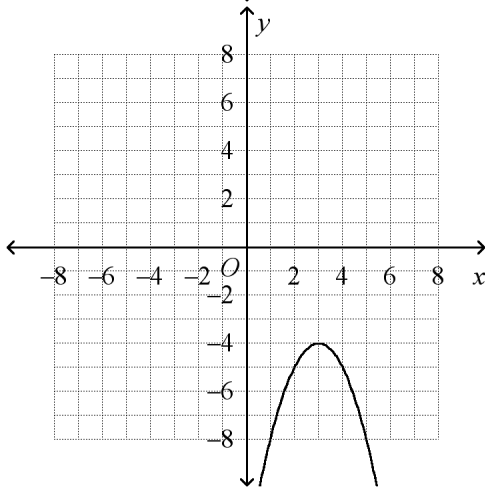
a.



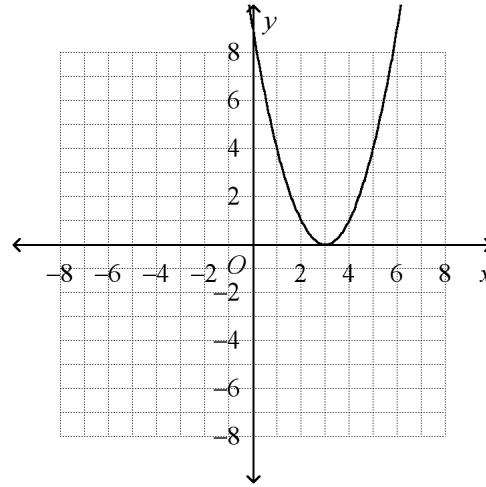
c.



b.



d.



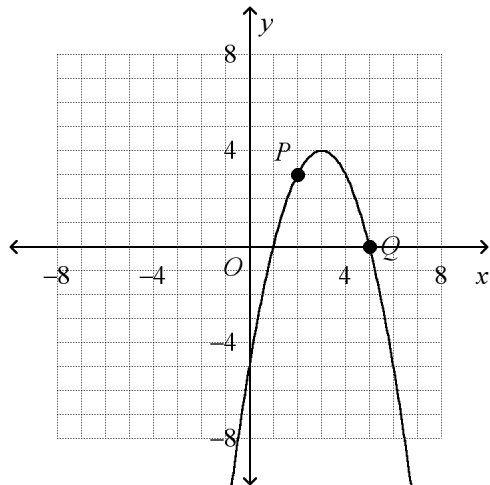
Short Answer

Determine whether the function is linear or quadratic. Identify the quadratic, linear, and constant terms.

2. (5-1) $f(x) = (3x - 5)(4x + 3)$

Identify the vertex and the axis of symmetry of the parabola. Identify points corresponding to P and Q .

3. (5-1)



Find a quadratic model for the set of values.

4. (5-1) $(-2, -23), (0, -3), (4, -59)$

5. (5-2) Dalco Manufacturing estimates that its weekly profit, P , in hundreds of dollars, can be approximated by the formula $P = -5x^2 + 10x + 8$, where x is the number of units produced per week, in thousands.

- How many units should the company produce per week to earn the maximum profit?
- Find the maximum weekly profit.

6. (5-3) Identify the vertex and the y -intercept of the graph of the function $y = -3(x - 3)^2 + 5$.

Write the equation of the parabola in vertex form.

7. (5-3) vertex $(0, -2)$, point $(1, 1)$

Factor the expression.

8. (5-4) $x^2 + 9x + 18$

9. (5-4) $16x^2 + 40x + 25$

10. (5-4) $36x^2 - 49$

11. (5-5) Solve by factoring.
 $2x^2 - 4x - 48 = 0$

Solve the equation by finding square roots.

12. (5-5) $3x^2 = 21$

13. (5-5) The function $y = -16t^2 + 476$ models the height y in feet of a stone t seconds after it is dropped from the edge of a vertical cliff. How long will it take the stone to hit the ground? Round to the nearest hundredth of a second.

14. (5-6) Simplify $\sqrt{-96}$ using the imaginary number i .

Simplify the expression.

15. (5-6) $(-6 + 5i)(-6 - 6i)$

Name: _____

ID: A

Solve the equation.

16. (5-6) $4x^2 + 36 = 0$

17. (5-7) Find the missing value to complete the square.
 $x^2 + 6x + \underline{\hspace{2cm}}$

Solve the quadratic equation by completing the square.

18. (5-7) $-3x^2 - 3x = 5$

Rewrite the equation in vertex form.

19. (5-7) $y = x^2 - 10x + 23$

Use the Quadratic Formula to solve the equation.

20. (5-8) $3x^2 + 7x + 2 = 0$

21. (5-8) $-x^2 + 9x - 6 = 0$

Alg 2, Chap 5 Practice Test, EV Ver 1 Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 DIF: L2 REF: 5-3 Translating Parabolas
 OBJ: 5-3.1 Using Vertex Form STA: CA A2 9.0 TOP: 5-3 Example 1
 KEY: graphing | translation

SHORT ANSWER

2. ANS:
 quadratic function
 quadratic term: $12x^2$
 linear term: $-11x$
 constant term: -15
- PTS: 1 DIF: L2 REF: 5-1 Modeling Data With Quadratic Functions
 OBJ: 5-1.1 Quadratic Functions and Their Graphs STA: CA A2 9.0 | CA A2 10.0
 TOP: 5-1 Example 1
 KEY: quadratic function | quadratic term | linear term | constant term
3. ANS:
 $(3, 4), x = 3;$
 $P'(4, 3), Q'(1, 0)$
- PTS: 1 DIF: L2 REF: 5-1 Modeling Data With Quadratic Functions
 OBJ: 5-1.1 Quadratic Functions and Their Graphs STA: CA A2 9.0 | CA A2 10.0
 TOP: 5-1 Example 2 KEY: parabola | vertex of a parabola | axis of symmetry
4. ANS:
 $y = -4x^2 + 2x - 3$
- PTS: 1 DIF: L3 REF: 5-1 Modeling Data With Quadratic Functions
 OBJ: 5-1.2 Using Quadratic Models STA: CA A2 9.0 | CA A2 10.0
 TOP: 5-1 Example 3 KEY: quadratic function | quadratic model
5. ANS:
 1,000 units; \$1300
- PTS: 1 DIF: L3 REF: 5-2 Properties of Parabolas
 OBJ: 5-2.2 Finding Maximum and Minimum Values STA: CA A2 9.0 | CA A2 10.0
 TOP: 5-2 Example 4
 KEY: maximum value | word problem | problem solving | multi-part question

6. ANS:
vertex: (3, 5);
y-intercept: -22

PTS: 1 DIF: L2 REF: 5-3 Translating Parabolas
OBJ: 5-3.1 Using Vertex Form STA: CA A2 9.0 TOP: 5-3 Example 3
KEY: parabola | vertex of a parabola | y-intercept

7. ANS:
 $y = 3x^2 - 2$

PTS: 1 DIF: L3 REF: 5-3 Translating Parabolas
OBJ: 5-3.1 Using Vertex Form STA: CA A2 9.0 TOP: 5-3 Example 2
KEY: parabola | equation of a parabola | vertex form

8. ANS:
 $(x + 6)(x + 3)$

PTS: 1 DIF: L2 REF: 5-4 Factoring Quadratic Expressions
OBJ: 5-4.1 Finding Common and Binomial Factors STA: CA A2 4.0
TOP: 5-4 Example 2 KEY: factor a quadratic expression | quadratic expression

9. ANS:
 $(4x + 5)^2$

PTS: 1 DIF: L2 REF: 5-4 Factoring Quadratic Expressions
OBJ: 5-4.2 Factoring Special Expressions STA: CA A2 4.0
TOP: 5-4 Example 7
KEY: factor a quadratic expression | factor a trinomial | perfect square trinomial

10. ANS:
 $(6x + 7)(6x - 7)$

PTS: 1 DIF: L2 REF: 5-4 Factoring Quadratic Expressions
OBJ: 5-4.2 Factoring Special Expressions STA: CA A2 4.0
TOP: 5-4 Example 8
KEY: difference of two squares | factoring a difference of two squares

11. ANS:
6, -4

PTS: 1 DIF: L2 REF: 5-5 Quadratic Equations
OBJ: 5-5.1 Solving by Factoring and Finding Square Roots STA: CA A2 8.0 | CA A2 10.0
TOP: 5-5 Example 1 KEY: factor a quadratic expression

12. ANS:
 $\sqrt{7}, -\sqrt{7}$

PTS: 1 DIF: L2 REF: 5-5 Quadratic Equations
OBJ: 5-5.1 Solving by Factoring and Finding Square Roots STA: CA A2 8.0 | CA A2 10.0
TOP: 5-5 Example 2 KEY: square root

13. ANS:
5.45 seconds
- PTS: 1 DIF: L2 REF: 5-5 Quadratic Equations
OBJ: 5-5.1 Solving by Factoring and Finding Square Roots STA: CA A2 8.0 | CA A2 10.0
TOP: 5-5 Example 3 KEY: round a number | word problem | problem solving
14. ANS:
 $4i\sqrt{6}$
- PTS: 1 DIF: L2 REF: 5-6 Complex Numbers
OBJ: 5-6.1 Identifying Complex Numbers STA: CA A2 5.0 | CA A2 6.0
TOP: 5-6 Example 1 KEY: i | imaginary number
15. ANS:
 $66 + 6i$
- PTS: 1 DIF: L2 REF: 5-6 Complex Numbers
OBJ: 5-6.2 Operations With Complex Numbers STA: CA A2 5.0 | CA A2 6.0
TOP: 5-6 Example 6
KEY: simplifying a complex number | complex number | multiplying complex numbers
16. ANS:
 $-3i, 3i$
- PTS: 1 DIF: L2 REF: 5-6 Complex Numbers
OBJ: 5-6.2 Operations With Complex Numbers STA: CA A2 5.0 | CA A2 6.0
TOP: 5-6 Example 7 KEY: complex number | imaginary number
17. ANS:
9
- PTS: 1 DIF: L2 REF: 5-7 Completing the Square
OBJ: 5-7.1 Solving Equations by Completing the Square STA: CA A2 8.0
TOP: 5-7 Example 2 KEY: completing the square
18. ANS:
 $-\frac{1}{2} \pm \frac{\sqrt{51}}{6} i$
- PTS: 1 DIF: L2 REF: 5-7 Completing the Square
OBJ: 5-7.1 Solving Equations by Completing the Square STA: CA A2 8.0
TOP: 5-7 Example 5 KEY: quadratic equation
19. ANS:
 $y = (x - 5)^2 - 2$
- PTS: 1 DIF: L2 REF: 5-7 Completing the Square
OBJ: 5-7.2 Rewriting a Function by Completing the Square STA: CA A2 8.0
TOP: 5-7 Example 6 KEY: vertex form | quadratic equation

20. ANS:

$$-\frac{1}{3}, -2$$

PTS: 1

DIF: L2

REF: 5-8 The Quadratic Formula

OBJ: 5-8.1 Using the Quadratic Formula

STA: CA A2 8.0

TOP: 5-8 Example 1

KEY: Quadratic Formula

21. ANS:

$$\frac{9}{2} \pm \frac{\sqrt{57}}{2}$$

PTS: 1

DIF: L2

REF: 5-8 The Quadratic Formula

OBJ: 5-8.1 Using the Quadratic Formula

STA: CA A2 8.0

TOP: 5-8 Example 1

KEY: Quadratic Formula