3.1 & 3.4 Quiz

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

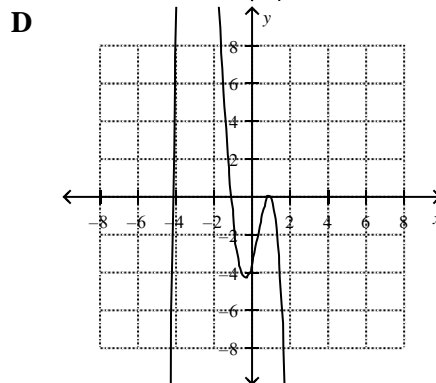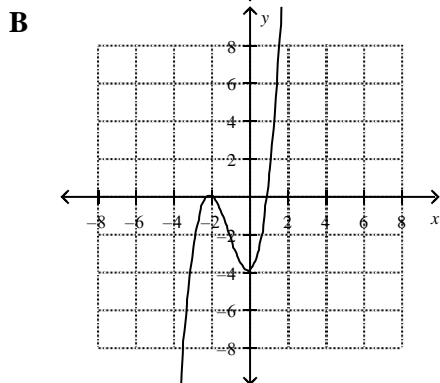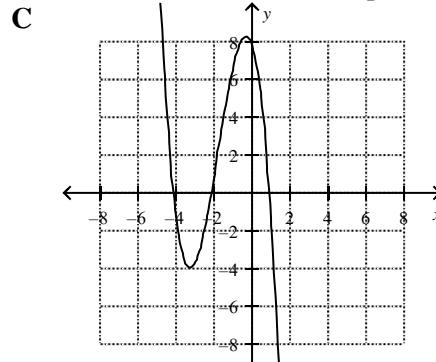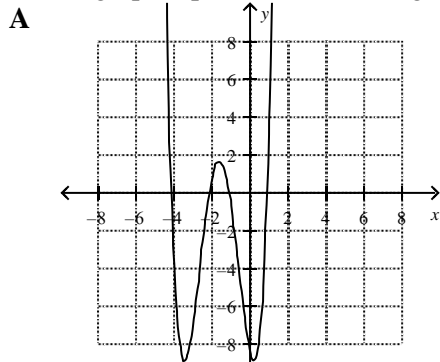_____ **1.** Which of the following is a polynomial function?

    A $y = -4x^4 + 4x^3 - 7x^2 + 9x$ **C** $g(x) = \sqrt{x + 4}$
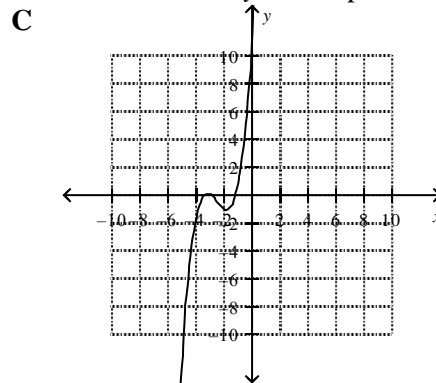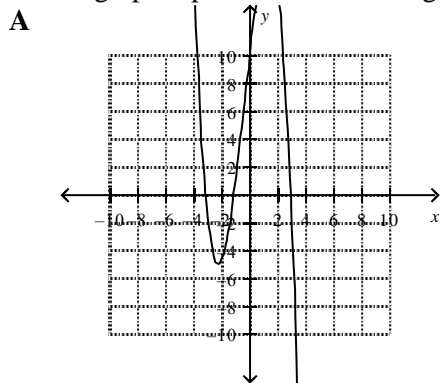
    B $f(x) = -4^x - 7$ **D** $y = \dfrac{-4x + 9}{x^2}$

_____ **2.** Which graph represents an odd-degree polynomial function with two *x*-intercepts?

    A

    C

    B

    D

_____ **3.** Which graph represents an even-degree polynomial function with a *y*-intercept of 9?

    A

    C

B

D

____ **4.** How many x-intercepts are possible for the polynomial function $h(x) = ax^5 + bx^4 + cx^3$?

A 4   **C** 3

B 5   **D** 1

____ **5.** One root of the equation $x^3 + 7x^2 - 33x - 135 = 0$ is

A −3   **C** 9

B 3   **D** −5

____ **6.** What is the maximum number of real distinct roots that a cubic equation can have?

A infinitely many   **C** 3

B 4   **D** 2

____ **7.** Based on the graph of $f(x) = x^4 - 2x^3 - 24x^2 + 8x + 96$, what are the real roots of $x^4 - 2x^3 - 24x^2 + 8x + 96 = 0$?

A −6, −2, 2, 4   **C** there are no real roots

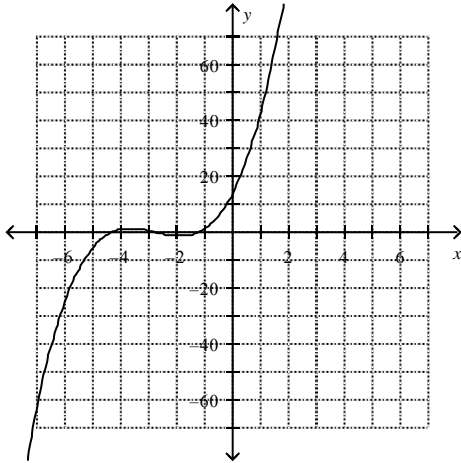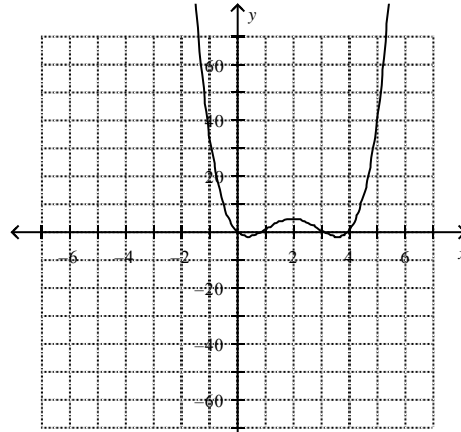**B**   6, 2, –2, –4   **D**   impossible to determine

____   **8.** Which of the following graphs of polynomial functions corresponds to a cubic polynomial equation with roots 4, 1, and 3?
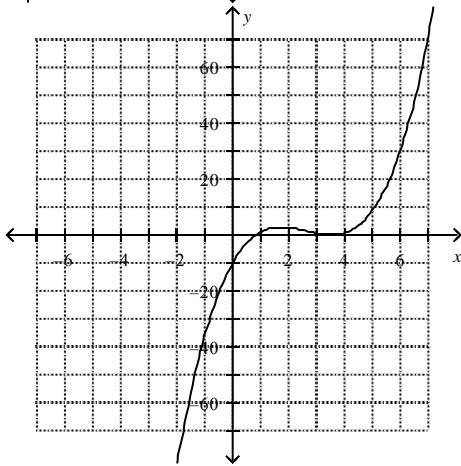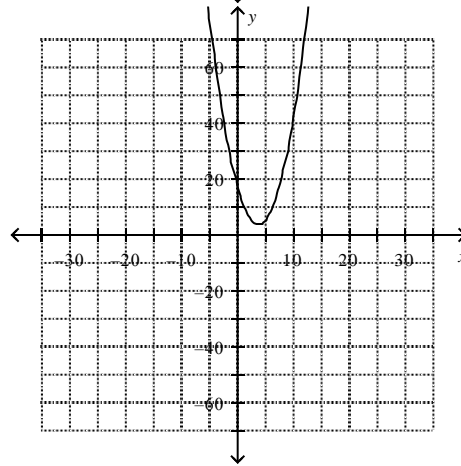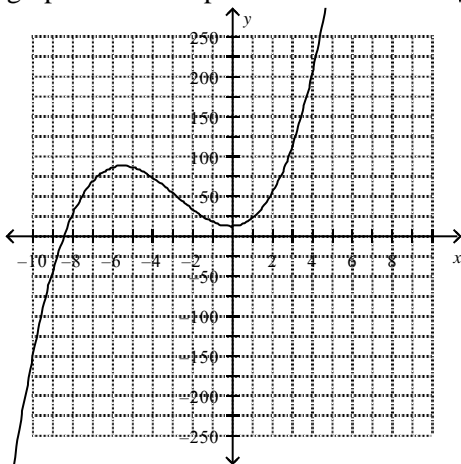
A

C
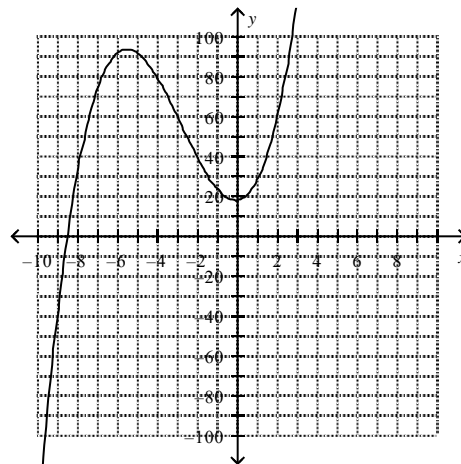

B

D

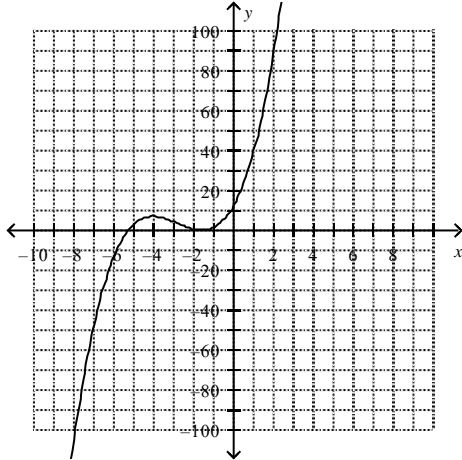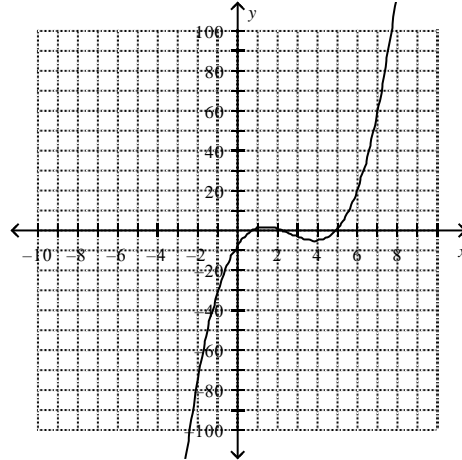____   **9.** The graph that corresponds to the function $f(x) = x^3 + 8x^2 + 17x + 10$ is

A

C

B

D

___ **10.** Which of the following graphs of polynomial functions corresponds to a polynomial equation with zeros –6 (multiplicity of 2) and –1 (multiplicity of 2)?

A
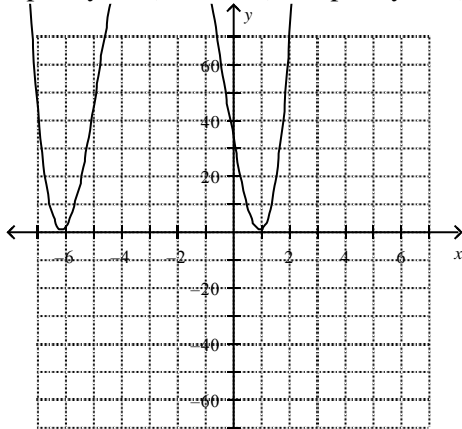
C
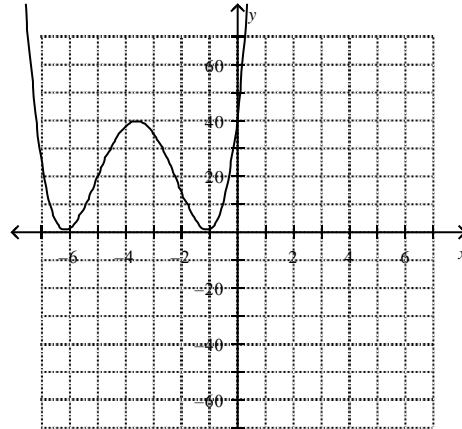
B
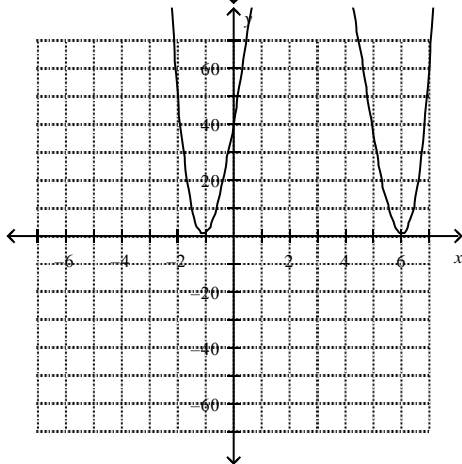
D
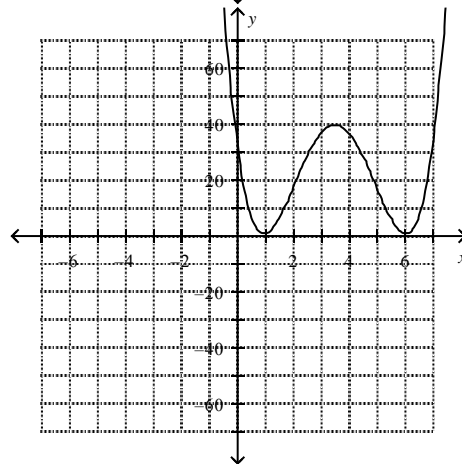
___ **11.** Given the function $y = x^3$, what are the parameters of the transformed function $y = \frac{1}{5}(x - 2)^3 - 8$ and what is the effect of each parameter on the graph of the original function?

A $a = \frac{1}{5}$, vertical stretch about the x-axis by a factor of $\frac{1}{5}$

$h = -8$, horizontal translation 8 units right

$k = 2$, vertical translation 2 units down

B $a = 5$, vertical stretch about the x-axis by a factor of 5
$h = 2$, horizontal translation 2 units left
$k = -8$, vertical translation 8 units right

C $a = \dfrac{1}{5}$, vertical stretch about the x-axis by a factor of $\dfrac{1}{5}$

$h = 2$, horizontal translation 2 units right
$k = -8$, vertical translation 8 units down

D $a = 5$, vertical stretch about the x-axis by a factor of 5
$h = 2$, horizontal translation 2 units right
$k = -8$, vertical translation 8 units down

3.1 & 3.4 Quiz
Answer Section

MULTIPLE CHOICE

1. ANS: A   PTS: 1   DIF: Easy   OBJ: Section 3.1
   NAT: RF12   TOP: Characteristics of Polynomial Functions
   KEY: polynomial function
2. ANS: B   PTS: 1   DIF: Average   OBJ: Section 3.1
   NAT: RF12   TOP: Characteristics of Polynomial Functions
   KEY: odd-degree | x-intercepts
3. ANS: B   PTS: 1   DIF: Average   OBJ: Section 3.1
   NAT: RF12   TOP: Characteristics of Polynomial Functions
   KEY: even-degree | x-intercepts | y-intercept
4. ANS: B   PTS: 1   DIF: Easy   OBJ: Section 3.1
   NAT: RF12   TOP: Characteristics of Polynomial Functions
   KEY: x-intercepts
5. ANS: A   PTS: 1   DIF: Average   OBJ: Section 3.4
   NAT: RF12   TOP: Equations and Graphs of Polynomial Functions
   KEY: polynomial equation | roots
6. ANS: C   PTS: 1   DIF: Easy   OBJ: Section 3.4
   NAT: RF12   TOP: Equations and Graphs of Polynomial Functions
   KEY: polynomial equation | roots
7. ANS: B   PTS: 1   DIF: Easy   OBJ: Section 3.4
   NAT: RF12   TOP: Equations and Graphs of Polynomial Functions
   KEY: polynomial equation | roots
8. ANS: B   PTS: 1   DIF: Average   OBJ: Section 3.4
   NAT: RF12   TOP: Equations and Graphs of Polynomial Functions
   KEY: polynomial equation | roots | graph
9. ANS: B   PTS: 1   DIF: Average   OBJ: Section 3.4
   NAT: RF12   TOP: Equations and Graphs of Polynomial Functions
   KEY: polynomial equation | zeros | graph
10. ANS: C   PTS: 1   DIF: Average   OBJ: Section 3.4
   NAT: RF12   TOP: Equations and Graphs of Polynomial Functions
   KEY: polynomial equation | zeros | graph | multiplicity
11. ANS: C   PTS: 1   DIF: Difficult   OBJ: Section 3.4
   NAT: RF12   TOP: Equations and Graphs of Polynomial Functions
   KEY: graph | transformations