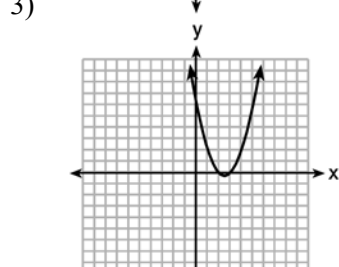
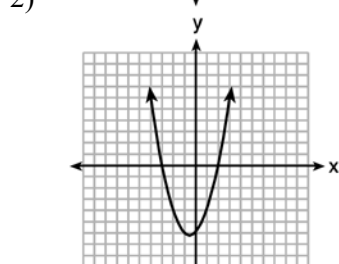
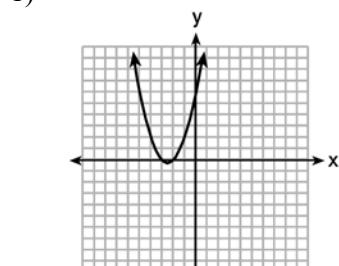
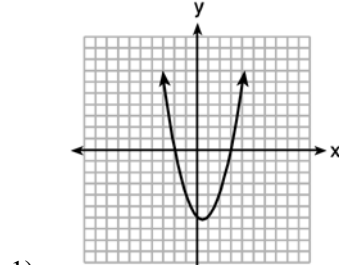
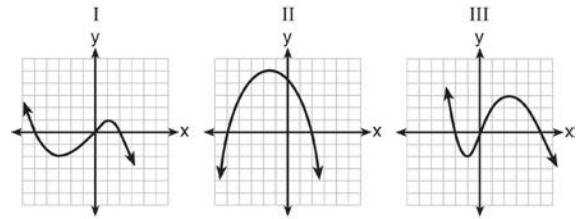


A.APR.B.3: Zeros of Polynomials 1a

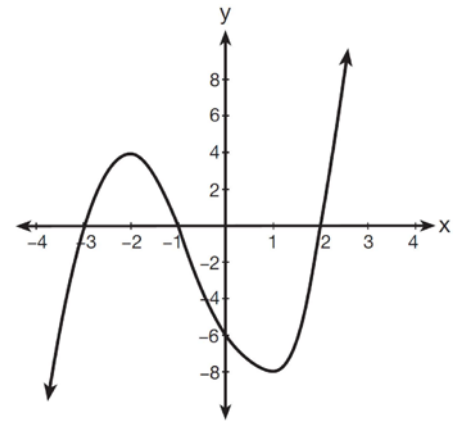
- 1 The graphs below represent functions defined by polynomials. For which function are the zeros of the polynomials 2 and -3?



- 2 A polynomial function contains the factors x , $x - 2$, and $x + 5$. Which graph(s) below could represent the graph of this function?

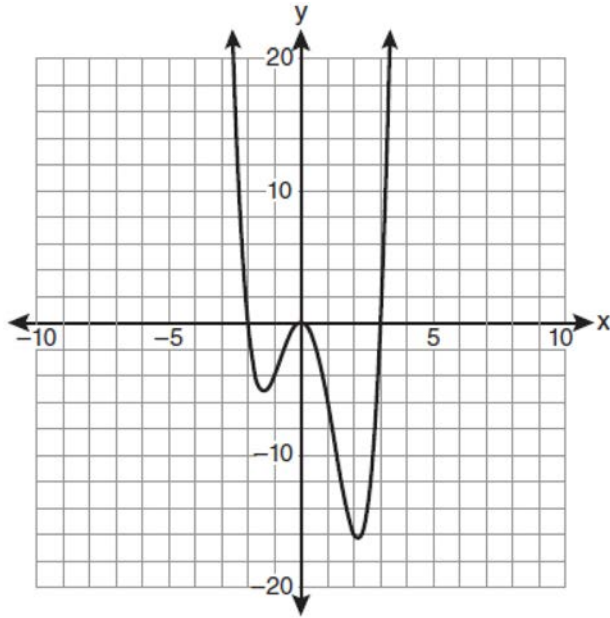


- 1) I, only
 2) II, only
 3) I and III
 4) I, II, and III
- 3 What are the zeros of the polynomial function graphed below?



- 1) $\{-3, -1, 2\}$
 2) $\{3, 1, -2\}$
 3) $\{4, -8\}$
 4) $\{-6\}$

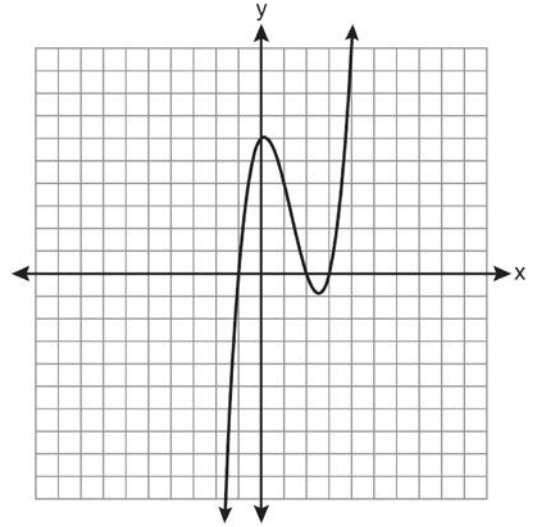
4 The graph of $y = f(x)$ is shown below.



Which set lists all the real solutions of $f(x) = 0$?

- 1) $\{-3, 2\}$
- 2) $\{-2, 3\}$
- 3) $\{-3, 0, 2\}$
- 4) $\{-2, 0, 3\}$

5 The graph of $y = x^3 - 4x^2 + x + 6$ is shown below.



What is the product of the roots of the equation $x^3 - 4x^2 + x + 6 = 0$?

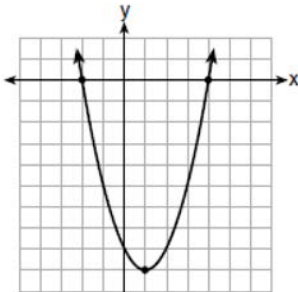
- 1) -36
 - 2) -6
 - 3) 6
 - 4) 4
- 6 The zeros of the function $f(x) = x^2 - 5x - 6$ are
- 1) -1 and 6
 - 2) 1 and -6
 - 3) 2 and -3
 - 4) -2 and 3
- 7 What are the zeros of the function $f(x) = x^2 - 13x - 30$?
- 1) -10 and 3
 - 2) 10 and -3
 - 3) -15 and 2
 - 4) 15 and -2
- 8 The zeros of the function $f(x) = 2x^3 + 12x - 10x^2$ are
- 1) $\{2, 3\}$
 - 2) $\{-1, 6\}$
 - 3) $\{0, 2, 3\}$
 - 4) $\{0, -1, 6\}$

- 9 The zeros of the function $f(x) = (x + 2)^2 - 25$ are
- 1) -2 and 5
 - 2) -3 and 7
 - 3) -5 and 2
 - 4) -7 and 3

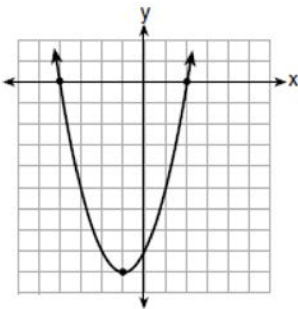
- 10 For which function defined by a polynomial are the zeros of the polynomial -4 and -6?
- 1) $y = x^2 - 10x - 24$
 - 2) $y = x^2 + 10x + 24$
 - 3) $y = x^2 + 10x - 24$
 - 4) $y = x^2 - 10x + 24$

- 11 Which polynomial function has zeros at -3, 0, and 4?
- 1) $f(x) = (x + 3)(x^2 + 4)$
 - 2) $f(x) = (x^2 - 3)(x - 4)$
 - 3) $f(x) = x(x + 3)(x - 4)$
 - 4) $f(x) = x(x - 3)(x + 4)$

- 12 Which function has zeros of -4 and 2?
- 1) $f(x) = x^2 + 7x - 8$

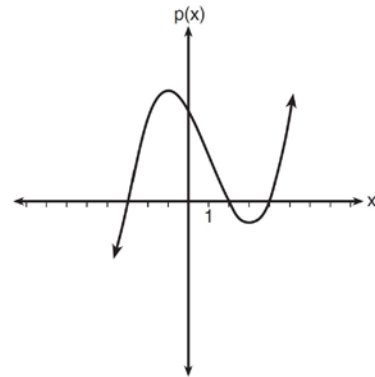


- 2)
- 3) $g(x) = x^2 - 7x - 8$



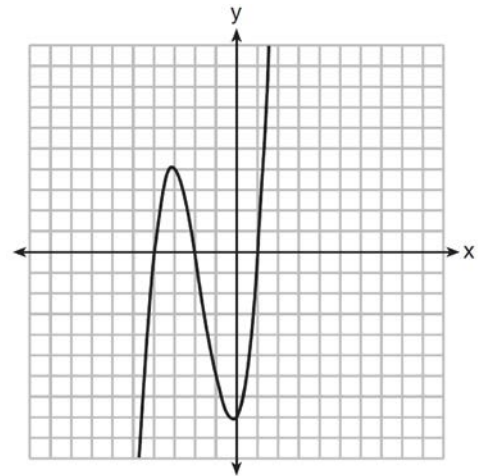
- 4)

- 13 Based on the graph below, which expression is a possible factorization of $p(x)$?



- 1) $(x + 3)(x - 2)(x - 4)$
- 2) $(x - 3)(x + 2)(x + 4)$
- 3) $(x + 3)(x - 5)(x - 2)(x - 4)$
- 4) $(x - 3)(x + 5)(x + 2)(x + 4)$

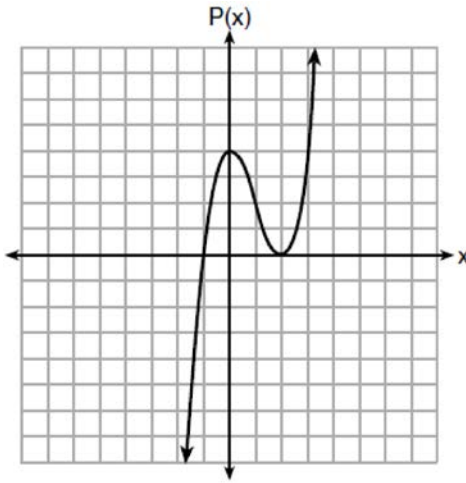
- 14 The graph of $f(x)$ is shown below.



Which function could represent the graph of $f(x)$?

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

- 15 Wenona sketched the polynomial $P(x)$ as shown on the axes below.

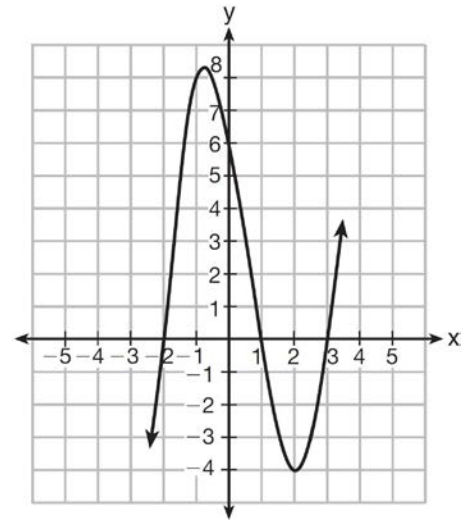


Which equation could represent $P(x)$?

- 1) $P(x) = (x + 1)(x - 2)^2$
- 2) $P(x) = (x - 1)(x + 2)^2$
- 3) $P(x) = (x + 1)(x - 2)$
- 4) $P(x) = (x - 1)(x + 2)$

- 16 Which equation(s) represent the graph below?

- I $y = (x + 2)(x^2 - 4x - 12)$
- II $y = (x - 3)(x^2 + x - 2)$
- III $y = (x - 1)(x^2 - 5x - 6)$



- 1) I, only
- 2) II, only
- 3) I and II
- 4) II and III

A.APR.B.3: Zeros of Polynomials 1a

Answer Section

1 ANS: 3 REF: spr1302ai

2 ANS: 1 REF: 011524ai

3 ANS: 1 REF: 081501a2

4 ANS: 4 REF: 061005a2

5 ANS: 2

The roots are $-1, 2, 3$.

REF: 081023a2

6 ANS: 1

$$f(x) = x^2 - 5x - 6 = (x + 1)(x - 6) = 0$$

$$x = -1, 6$$

REF: 061612ai

7 ANS: 4

$$x^2 - 13x - 30 = 0$$

$$(x - 15)(x + 2) = 0$$

$$x = 15, -2$$

REF: 061510ai

8 ANS: 3

$$2x^3 + 12x - 10x^2 = 0$$

$$2x(x^2 - 5x + 6) = 0$$

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

$$x = 0, 2, 3$$

REF: 081719ai

9 ANS: 4

$$(x + 2)^2 - 25 = 0$$

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

$$x = -7, 3$$

REF: 081418ai

10 ANS: 2

$$(x + 4)(x + 6) = 0$$

$$x^2 + 10x + 24 = 0$$

REF: spr1303ai

11 ANS: 3 REF: 061710ai

12 ANS: 4 REF: 011706ai

13 ANS: 1 REF: 081623ai

14 ANS: 1

$$f(x) = (x + 2)(x + 4)(x - 1)$$

REF: 081504ai

15 ANS: 1 REF: 081707ai

16 ANS: 2

$$y = (x - 3)(x + 2)(x - 1)$$

REF: 061512ai