

05 - Lesson 4, Exam 5

Part 1 of 1 -

25.0/ 100.0 Points

Question 1 of 20

5.0/ 5.0 Points

Use synthetic division to find $P(-2)$ for $P(x) = x^4 + 9x^3 - 9x + 2$.

- ☐ A. 68
- ☒ B. -36
- ☐ C. -2
- ☐ D. 0

Question 2 of 20

5.0/ 5.0 Points

Find all the zeros of the equation.

$$-4x^4 - 44x^2 + 3600 = 0$$

- ☒ A. 5, -5, 6i, -6i
- ☐ B. 5, 6i
- ☐ C. 5, -5, 6i, 0
- ☐ D. -5, -6i

Question 3 of 20

0.0/ 5.0 Points

Find the roots of the polynomial equation.

$$-x^3 + 5x^2 - 11x + 55 = 0$$

- ☐ A. $i\sqrt{11}$, $-i\sqrt{11}$, -5
- ☒ B. $\sqrt{11}$, $-\sqrt{11}$, 5
- ☐ C. $i\sqrt{11}$, -5
- ☐ D. $i\sqrt{11}$, $-i\sqrt{11}$, 5

Question 4 of 20

0.0/ 5.0 Points

What are all the real zeros of $y = (x - 12)^3 - 10$?

- ☐ A. $x = \sqrt[3]{10 + 12}$
- ☐ B. $x = \sqrt[3]{10} + 12$
- ☒ C. $x = \sqrt[3]{-10} + 12$

☐ D. $x = \sqrt[3]{12} - 10$

Question 5 of 20

5.0/ 5.0 Points

Write $-2x^2(-5x^2 + 4x^3)$ in standard form.

☐ A.

$$-8x^5 - 20x^4$$

☒ B.

$$-8x^5 + 10x^4$$

☐ C.

$$-7x + 2x^4$$

☐ D.

$$-7x^5 - 10x^4$$

Question 6 of 20

0.0/ 5.0 Points

Find the roots of the polynomial equation.

$$x^3 - 2x^2 + 10x + 136 = 0$$

☐ A. $3 \pm i, 4$

☐ B. $-3 \pm 5i, -4$

☒ C. $-3 \pm i, 4$

☐ D. $3 \pm 5i, -4$

Question 7 of 20

0.0/ 5.0 Points

Factor completely $x^3 + 2x^2 - 15x$

☐ A. $x(x-3)(x+5)$

☒ B. $-3x(x+5)(x+1)$

☐ C. $5x(x+1)(x-3)$

☐ D. $x(x+5)(x+3)$

Question 8 of 20

0.0/ 5.0 Points

The polynomial $x^3 + 5x^2 - 57x - 189$ expresses the volume, in cubic inches, of a shipping box, and the width is $(x+3)$ in. If the width of the box is 15 in., what are the other two dimensions? (Hint: The height is greater than the depth.)

- ☐ A.
height: 19 in.
depth: 5 in
- ☐ B.
height: 21 in.
depth: 5 in.
- ☒ C.
height: 19 in.
depth: 7 in.
- ☐ D.
height: 21 in.
depth: 7 in.

Question 9 of 20

5.0/ 5.0 Points

What polynomial has a graph that passes through the given points?

$(-2, 2)$ $(-1, -1)$ $(1, 5)$ $(3, 67)$

- ☐ A. $y = -x^3 + 4x^2 + 2x - 2$
- ☒ B. $y = x^3 + 4x^2 + 2x - 2$
- ☐ C. $y = x^4 + 4x^3 + 2x^2 - 2x$
- ☐ D. $y = x^3 - 4x^2 - 2x - 2$

Question 10 of 20

0.0/ 5.0 Points

The table shows the annual consumption of cheese per person in the United States for selected years in the 20th century. Let x = number of years since 1900, and y = pounds per person. What cubic model best fits this data?

Year	Pounds Consumed
1902	1.959
1924	6.373
1946	7.29
1982	15.817

- ☐ A. $y = 0.00989x^3 - 0.0000872x^2 + 1.192x + 0.403$
- ☒ B. $y = -0.0000872x^3 + 0.00989x^2 - 0.403x - 1.192$
- ☐ C. $y = -0.0000872x^3 - 0.00989x^2 - 0.403x + 1.192$
- ☐ D. $y = 0.0000872x^3 - 0.00989x^2 + 0.403x + 1.192$

Question 11 of 20

0.0/ 5.0 Points

What is the equation of $y = x^3$ with the given transformations?

horizontal translation right 10 units and vertical translation down 12 units

- ☐ A. $y = (x - 10)^3 - 12$
- ☐ B. $y = (x + 10)^3 - 12$
- ☒ C. $y = (x - 12)^3 + 10$
- ☐ D. $y = (x + 12)^3 + 10$

Question 12 of 20

0.0/ 5.0 Points

What is the relative maximum and minimum of the function?

$$f(x) = 2x^2 + 28x - 8$$

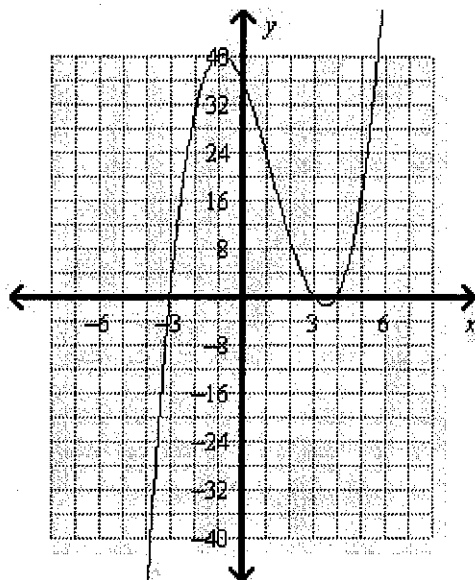
- ☐ A. Minimum Value: -106 Range $y \geq -7$
- ☐ B. Minimum Value: -106 Range $y \geq -106$
- ☒ C. Minimum Value: -7 Range $y \geq -7$
- ☐ D. Minimum Value: 7 Range $y \geq 7$

Question 13 of 20

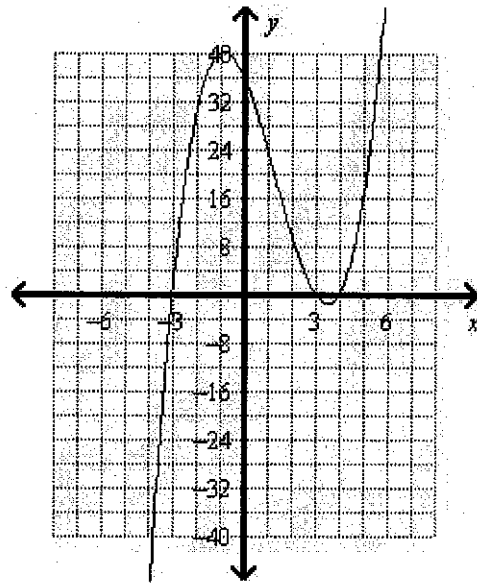
0.0/ 5.0 Points

What are the zeros of the function? Graph the function.

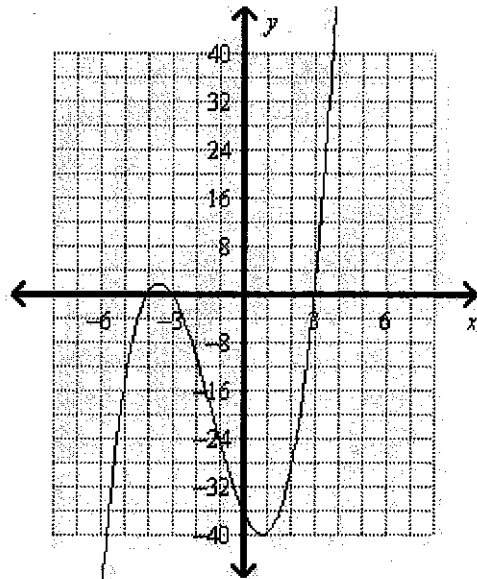
$$y = (x + 3)(x - 3)(x - 4)$$



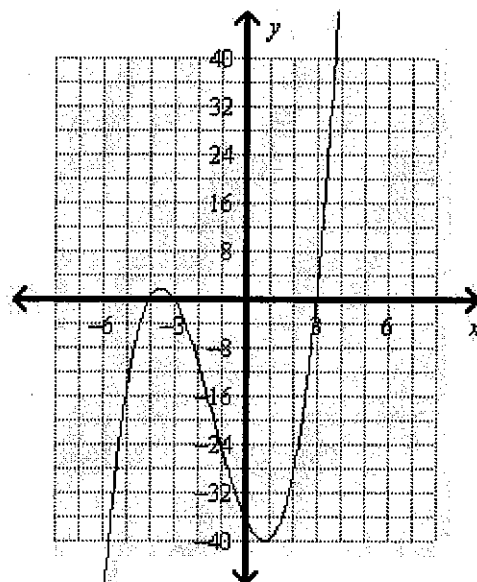
- ☐ A. -3, 3, 4



☐ B.
3, -3, -4



☒ C.
3, -3, -4



- ☐ D.
-3, 2, -4

Question 14 of 20

0.0/ 5.0 Points

Write $-2x^2(-5x^2+4x^3)$ in standard form.

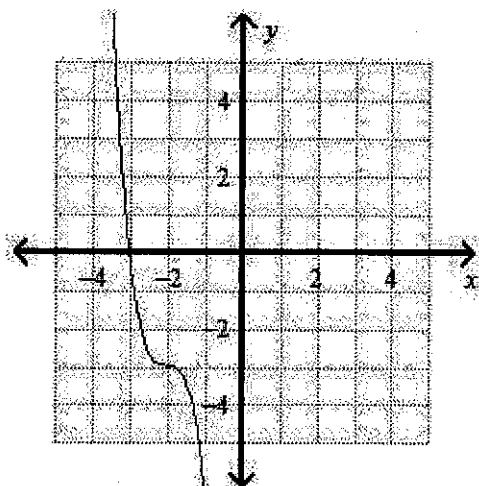
- ☐ A.
 $-8x^5 - 20x^4$
- ☐ B.
 $-8x^5 + 10x^4$
- ☒ C.
 $-7x + 2x^4$
- ☐ D.
 $-7x^5 - 10x^4$

Question 15 of 20

5.0/ 5.0 Points

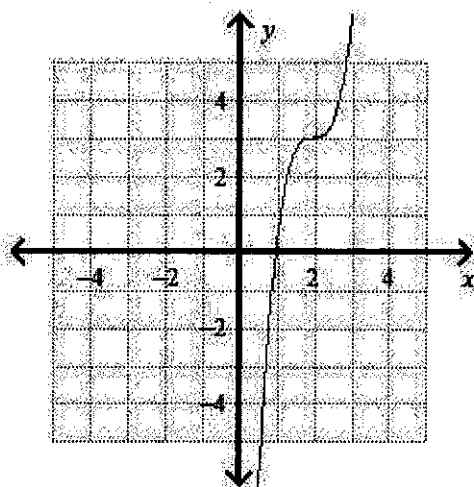
Graph $y = 3(x + 2)^3 - 3$ and describe the end behavior.

☐ A.



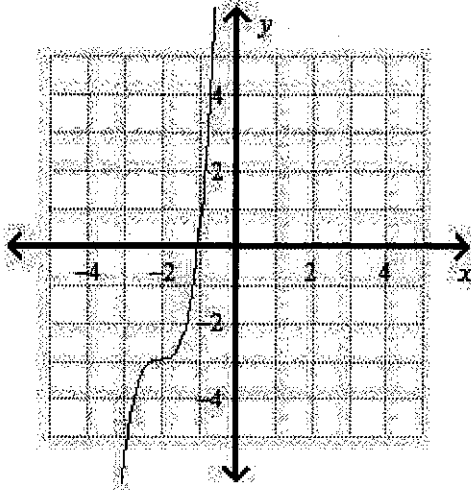
The end behavior is up and down.

☐ B.



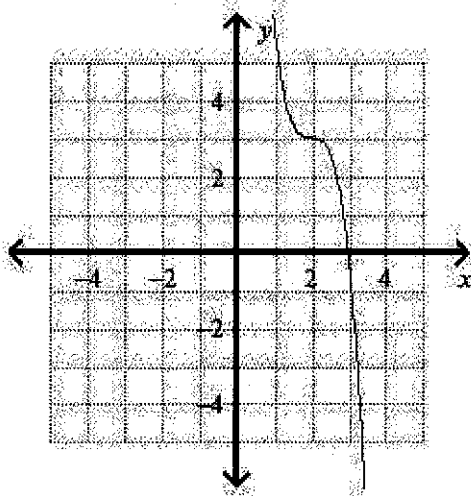
The end behavior is down and up.

☒ C.



The end behavior is down and up.

☐ D.



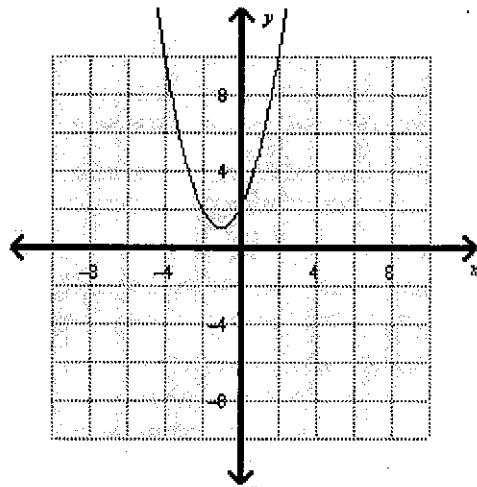
The end behavior is up and down.

Question 16 of 20

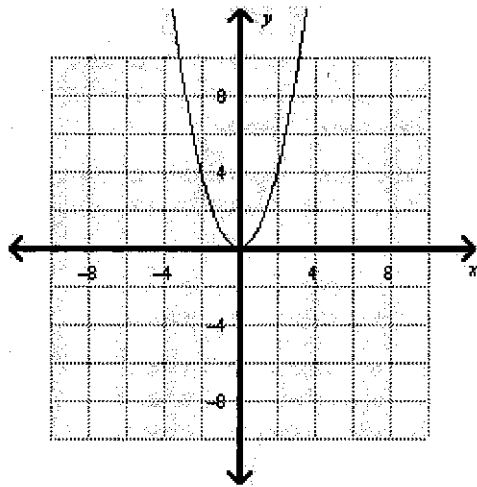
0.0/ 5.0 Points

Find the real solutions of the equation by graphing.

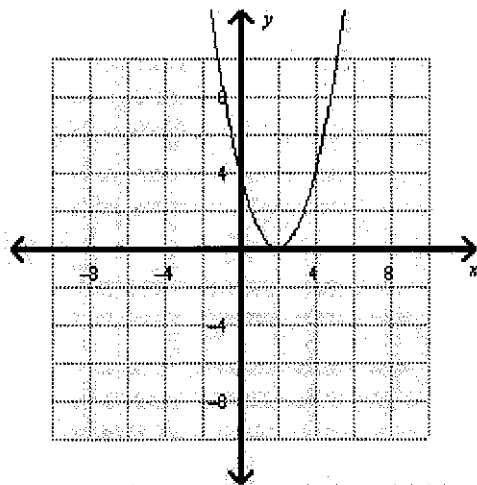
$$x^2 + 2x + 2 = 0$$



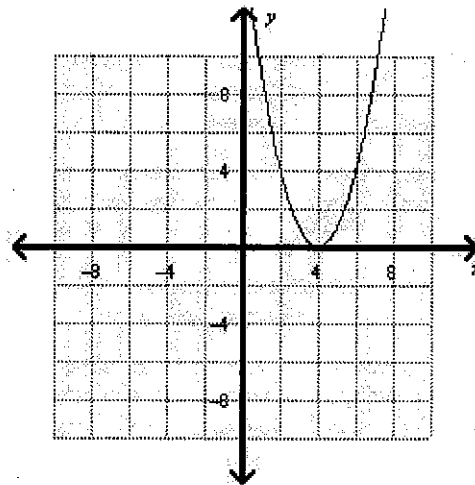
☐ A.
no solution



☒ B.
 $x = 4$



☐ C.
 $x = 2$



- ☐ D.
 $x = 0$

Question 17 of 20

0.0/ 5.0 Points

How many roots do the following equations have?

$$-12x^2 - 25x + 5 + x^3 = 0$$

- ☐ A. 3
☐ B. 2
☒ C. 5
☐ D. 4

Question 18 of 20

0.0/ 5.0 Points

What is a quartic function with only the two real zeros given?

$$x = -4 \text{ and } x = -1$$

- ☐ A. $y = x^4 + 5x^3 + 5x^2 + 5x + 4$
☐ B. $y = x^4 - 5x^3 - 5x^2 - 5x - 4$
☒ C. $y = -x^4 + 5x^3 + 5x^2 + 5x + 4$
☐ D. $y = x^4 + 5x^3 + 5x^2 + 5x - 5$

Question 19 of 20

0.0/ 5.0 Points

Divide $4x^3 + 2x^2 + 3x + 4$ by $x + 4$.

- ☐ A. $4x^2 + 18x - 53$, R 240
☐ B. $4x^2 - 14x + 59$
☒ C. $4x^2 + 18x - 53$
☐ D. $4x^2 - 14x + 59$, R -232

0.0/ 5.0 Points

Question 20 of 20

What are the real or imaginary solutions of the polynomials

$$x^4 - 52x^2 + 576 = 0$$

- ☐ A. 0,4,6
- ☐ B. No Solution
- ☒ C. -4, -6
- ☐ D. -4,4,-6,6