

Pre-Calculus

Chapter 2 Practice Test 2020

Name _____

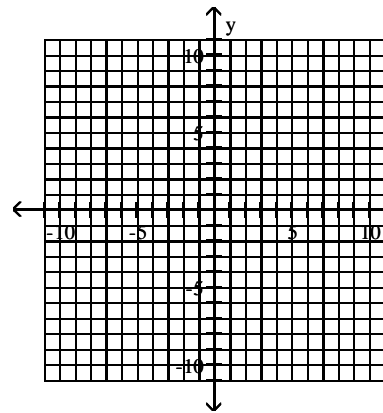
Use the vertex and intercepts to sketch the graph of the quadratic function.

1) $f(x) = x^2 + 6x + 8$ Find the vertex, and x- and y-intercepts.

1) _____

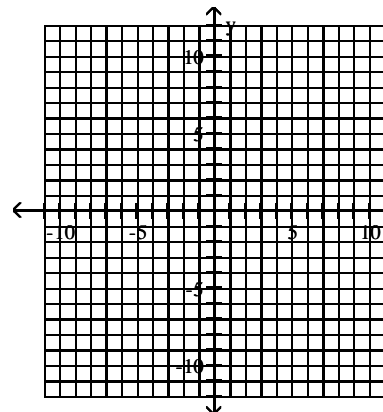
2) $y + 1 = (x - 5)^2$

2) _____



3) $f(x) = -2x^2 + 16x - 33$

3) _____



4) $(-5x^5 - x^3 - 4x^2 + 138x + 20) \div (x^2 - 5)$

4) _____

Solve the problem.

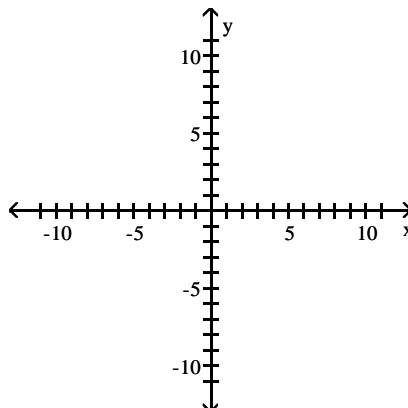
5) The manufacturer of a CD player has found that the revenue R (in dollars) is $R(p) = -5p^2 + 1040p$, when the unit price is p dollars. If the manufacturer sets the price p to maximize revenue, what is the maximum revenue to the nearest whole dollar?

5) _____

Use transformations of $f(x) = \frac{1}{x}$ or $f(x) = \frac{1}{x^2}$ to graph the rational function.

6) $f(x) = \frac{1}{x - 4} + 3$

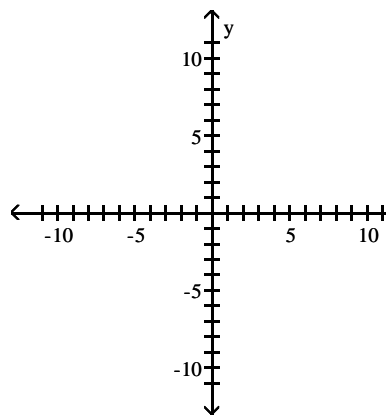
6) _____



Graph the rational function.

$$7) f(x) = \frac{3x^2}{x^2 - 9}$$

7) _____



Find the zeros for the polynomial function and give the multiplicity for each zero.

$$8) f(x) = x^3 + 5x^2 - x - 5$$

8) _____

$$9) f(x) = 3(x - 1)(x + 4)^2$$

9) _____

$$10) f(x) = x^3 + x^2 - 6x$$

10) _____

Find a rational zero of the polynomial function and use it to find all the zeros of the function.

11) $f(x) = 3x^3 - 19x^2 + 30x - 8$

11) _____

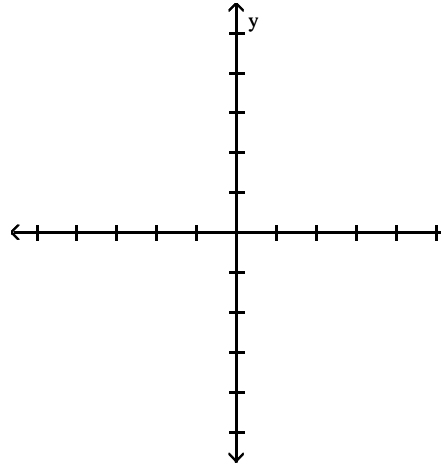
12) $f(x) = x^3 + 6x^2 + 16x + 16$

12) _____

Graph the function.

$$13) f(x) = \frac{x^2 + x + 2}{x + 1}$$

13) _____



Find the x-intercepts (if any) for the graph of the quadratic function. Give your answers in exact form.

$$14) 2x^2 + 8x + 3 = 0$$

14) _____

$$15) f(x) = -x^2 + 19x - 90$$

15) _____

Find the coordinates of the vertex for the parabola defined by the given quadratic function.

$$16) f(x) = 2x^2 + 4x - 2$$

16) _____

Find the y-intercept for the graph of the quadratic function.

$$17) f(x) = (x - 1)^2 - 1$$

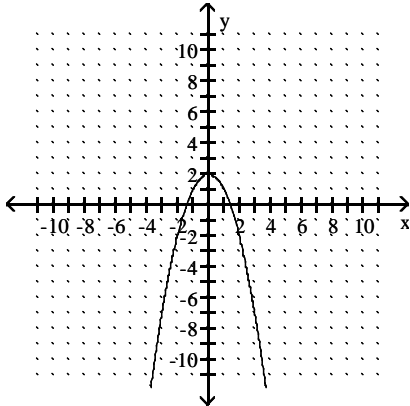
17) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

The graph of a quadratic function is given. Determine the function's equation.

18)

18) _____



A) $j(x) = -x^2 + 2$

B) $g(x) = -x^2 + 4x + 4$

C) $f(x) = -x^2 - 4x - 4$

D) $h(x) = -x^2 - 2$

Use synthetic division to show that the number given to the right of the equation is a solution of the equation, then solve the polynomial equation.

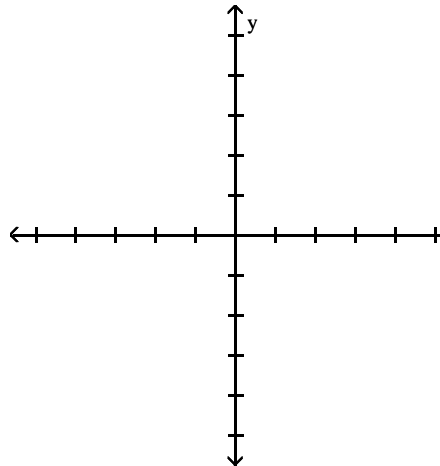
19) $x^3 - 3x^2 - 10x + 24 = 0; 2$

19) _____

Graph the polynomial function.

20) $f(x) = x^3 + 3x^2 - x - 3$

20) _____



21) Perform the indicated operation

$$\frac{x^4 + 3x^3 + x^2 + 5x + 3}{x + 1}$$

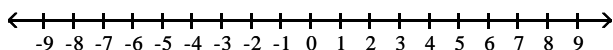
21) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

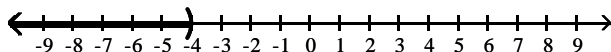
Solve the rational inequality and graph the solution set on a real number line. Express the solution set in interval notation.

22) $\frac{x - 5}{x + 4} < 0$

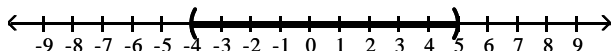
22) _____



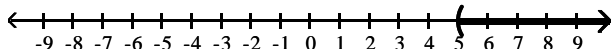
A) $(-\infty, -4)$



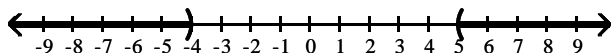
B) $(-4, 5)$



C) $(5, \infty)$

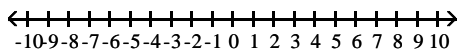


D) $(-\infty, -4)$ or $(5, \infty)$

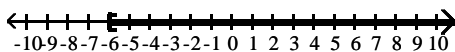


23) $\frac{-x - 6}{x + 7} \leq 0$

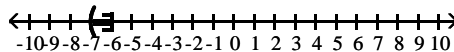
23) _____



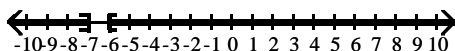
A) $[-6, \infty)$



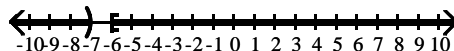
B) $(-7, -6]$



C) $(-\infty, -7]$ or $[-6, \infty)$



D) $(-\infty, -7)$ or $[-6, \infty)$



Use Descartes's Rule of Signs to determine the possible number of positive and negative real zeros for the given function.

24) $f(x) = x^7 + x^4 + x^2 + x + 9$

- A) 0 positive zeros, 0 negative zeros
- C) 0 positive zeros, 3 or 1 negative zeros

- B) 0 positive zeros, 2 or 0 negative zeros
- D) 0 positive zeros, 1 negative zero

24) _____

25) $f(x) = x^5 - 1.5x^4 - 13.76x^3 + 3x^2 + 34.42x - 15.397$

- A) 3 or 1 positive zeros, 3 or 1 negative zeros
- C) 2 or 0 positive zeros, 3 or 1 negative zeros

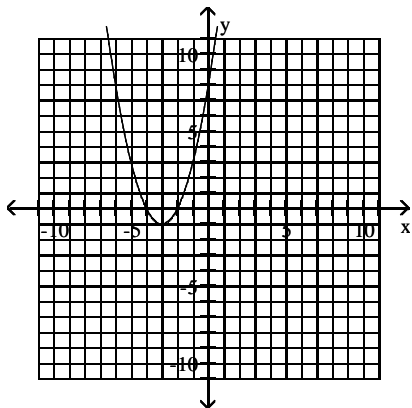
- B) 3 or 1 positive zeros, 2 or 0 negative zeros
- D) 2 or 0 positive zeros, 2 or 0 negative zeros

25) _____

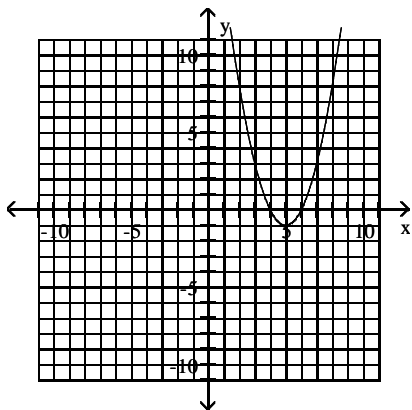
Answer Key

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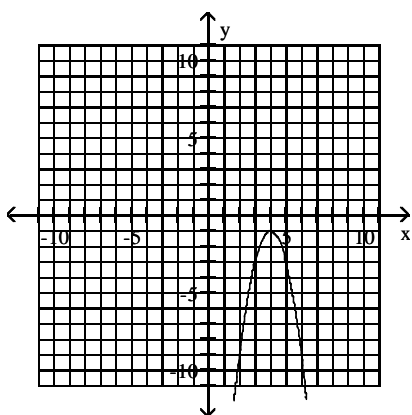
1)



2)



3)



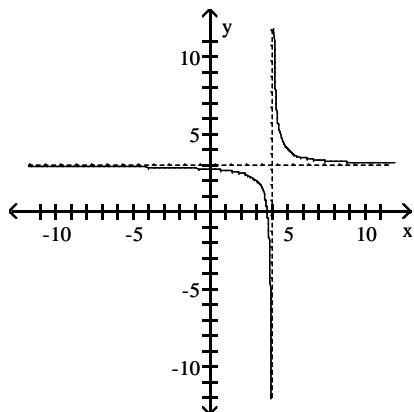
4) $-5x^3 - 26x - 4 + \frac{8x}{x^2 - 5}$

5) \$54,080

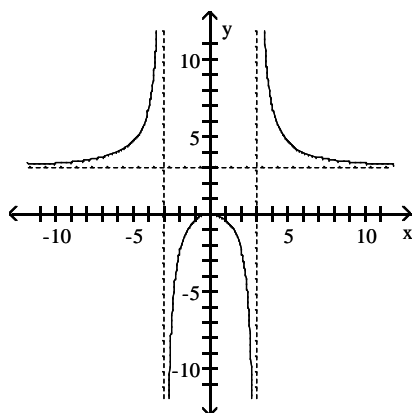
Answer Key

Testname: CHAPTER 2 PRACTICE TEST 2019

6)



7)



8) -1, multiplicity 1, crosses the x-axis;

1, multiplicity 1, crosses the x-axis;

-5, multiplicity 1, crosses the x-axis.

9) 1, multiplicity 1, crosses x-axis; -4, multiplicity 2, touches x-axis and turns around

10) 0, multiplicity 1, crosses the x-axis

-3, multiplicity 1, crosses the x-axis

2, multiplicity 1, crosses the x-axis

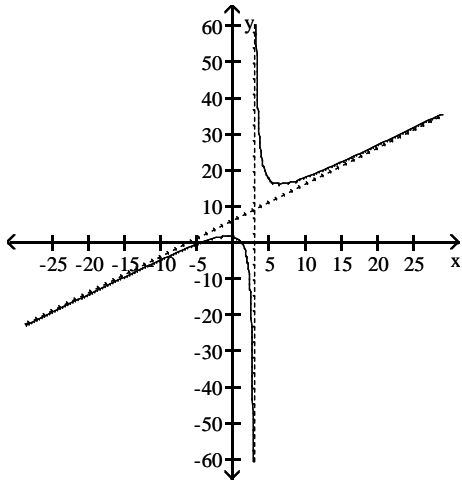
11) $\left\{\frac{1}{3}, 2, 4\right\}$

12) $\{-2, -2 + 2i, -2 - 2i\}$

Answer Key

Testname: CHAPTER 2 PRACTICE TEST 2019

13)



14) $\left(\frac{-4 \pm \sqrt{10}}{2}, 0 \right)$

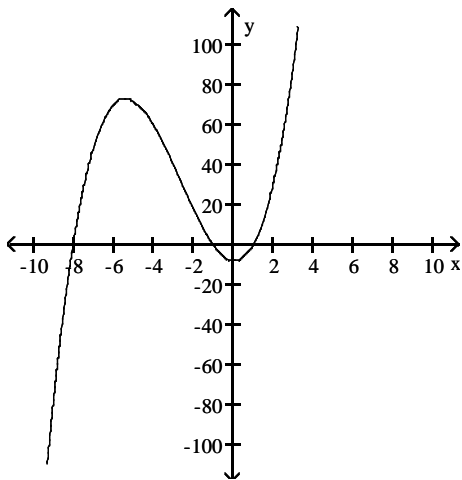
15) $(9, 0)$ and $(10, 0)$

16) $(-1, -4)$

17) $(0, 0)$

18) A

19) $\{4, -3, 2\}$



20)

21) $x^3 + 2x^2 - x + 6 - \frac{3}{x+1}$

22) B

23) D

24) C

25) B