

Part I: Write the letter for the correct answer in the blank at the right of each question.

1. Simplify $(4x^3y)^2(-3x^5y^1)$.

$$(16x^6y^2)(-3x^5y^1)$$

1. $-48x^{11}y^3$

2. Simplify $(2x^2 - 2x + 5) - (5x^2 - 3x + 9)$.

2. $-3x^2 + x - 4$

3. Find $p(-2)$ if $p(x) = 4x^2 + 9x - 4$.

$$4(-2)^2 + 9(-2) - 4 = 16 - 18 - 4 = -6$$

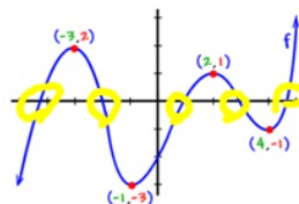
3. $p(-2) = -6$

4. State the degree of $2x - 5x^5 + 7x^3 + 6$.

4. 5

For Questions 5 and 6, use the graph shown.

5. State the number of real zeros of the function.



5. 5 zeros

6. As $x \rightarrow -\infty$, $f(x) \rightarrow ?$ describes the end behavior of the graph.

6. $-\infty$

$$\textcircled{8} \quad \begin{array}{r} 2 \overline{) 2 \quad 1 \quad -14 \quad 8} \\ \underline{4 \quad 10 \quad -8} \\ 2 \quad 5 \quad -4 \quad 0 \end{array}$$

$$\textcircled{9} \quad \begin{array}{r} -3 \overline{) 1 \quad 4 \quad -10 \quad -5} \\ \underline{-3 \quad -3 \quad 39} \\ 1 \quad 1 \quad -13 \quad \textcircled{34} \end{array}$$

8. Use long division to find $(2x^3 + x^2 - 14x + 8) \div (x - 2)$.

9. Use synthetic division to find $(x^3 + 4x^2 - 10x - 5) \div (x + 3)$.

10. Simplify $(x^3 - 125) \div (x - 5)$

11. Simplify $(c + 5)(c - 3)$.

$$\begin{array}{r} 2x^2 + 5x - 4 \\ \underline{x^2 + x - 13 + \frac{34}{x+3}} \end{array}$$

10. _____

11. _____