

2.2 Classifying & End Behavior

Period _____

Write each polynomial in standard form. Then classify it by degree and number of terms.

1) $4 - 6x - x^3 - 5x^2$

2) $-5 + 7p^4 - 2p$

3) $5n^2 - 3n^3$

4) $-5n^2$

5) $-10k^3 - 3 - 7k + 10k^2$

6) $-9k^2 + 6 - 10k$

7) $-2r + 7r^2$

8) x^5

Describe the end behavior informally and formally for each function.

9) $f(x) = -x^5 + 4x^3 - 3x - 4$

10) $f(x) = x^3 - 2x^2 - 1$

11) $f(x) = x^5 - 3x^3 + 3x - 1$

12) $f(x) = 2x^2 - 16x + 29$

$$13) f(x) = x^4 - 2x^3 - 2x^2 + 5$$

$$14) f(x) = x^2 + 8x + 15$$

State the zeroes and their multiplicity for each function.

$$15) f(x) = x(x + 3)(x - 1)$$

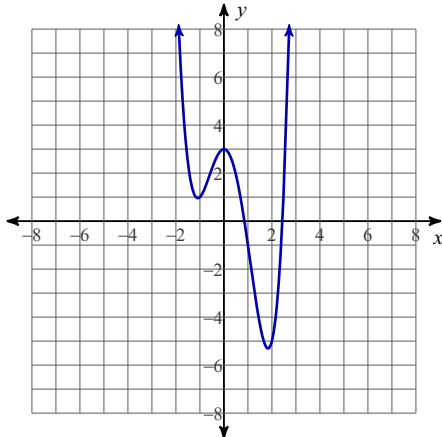
$$16) f(x) = (x - 3)(x + 5)$$

$$17) f(x) = (x + 4)(x - 2)$$

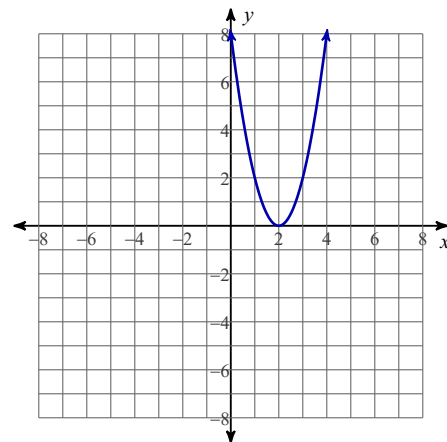
$$18) f(x) = (x + 4)(x - 1)$$

Classify the polynomial. State the maximum number of turning points. List the intervals on which the polynomial is increasing and decreasing (approximate values if they are vague).

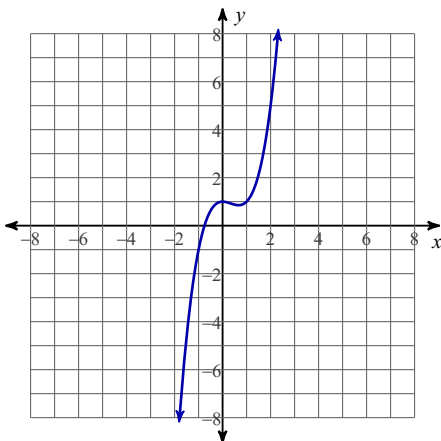
$$19) f(x) = x^4 - x^3 - 4x^2 + 3$$



$$20) f(x) = 2x^2 - 8x + 8$$



$$21) f(x) = x^3 - x^2 + 1$$



$$22) f(x) = -x^4 + 3x^3 + x^2 - 7x - 1$$

