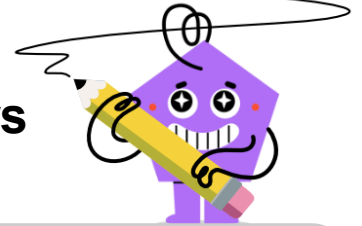




Polynomial Inequalities - Three Factors with Multiplicity - Intervals



1 On which set of open intervals does this polynomial keep a constant sign?

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

- A $(-\infty, -3) \cup (-3, 0) \cup (0, 2) \cup (2, \infty)$ B $(-\infty, -4) \cup (-4, 0) \cup (0, 2) \cup (2, \infty)$
 C $(-\infty, -2) \cup (-2, 0) \cup (0, 2) \cup (2, \infty)$ D $(-\infty, 0) \cup (0, 2) \cup (2, \infty)$

2 On which set of open intervals does this polynomial keep a constant sign?

$$(x + 2)(x - 1)^2(x - 4)^2$$

- A $(-\infty, -4) \cup (-4, -2) \cup (-2, \infty)$ B $(-\infty, -2) \cup (-2, 4) \cup (4, \infty)$
 C $(-\infty, -2) \cup (-2, \infty)$ D $(-\infty, -2) \cup (-2, 1) \cup (1, \infty)$

3 On which set of open intervals does this polynomial keep a constant sign?

$$(x + 2)(x + 1)^2 x^2$$

- A $(-\infty, -4) \cup (-4, -2) \cup (-2, \infty)$ B $(-\infty, -2) \cup (-2, -1) \cup (-1, \infty)$
 C $(-\infty, -2) \cup (-2, \infty)$ D $(-\infty, -2) \cup (-2, 0) \cup (0, \infty)$

4 On which set of open intervals does this polynomial keep a constant sign?

$$(x + 3)^3(x - 3)^5(x - 4)^4$$

- A $(-\infty, -3) \cup (-3, -2) \cup (-2, 3) \cup (3, \infty)$ B $(-\infty, -4) \cup (-4, -3) \cup (-3, 3) \cup (3, \infty)$
 C $(-\infty, -3) \cup (-3, 3) \cup (3, \infty)$ D $(-\infty, -3) \cup (-3, 3) \cup (3, 4) \cup (4, \infty)$

5 On which set of open intervals does this polynomial keep a constant sign?

$$(x - 1)^2(x - 2)^4(x - 4)^3$$

- A $(-\infty, 2) \cup (2, 4) \cup (4, \infty)$ B $(-\infty, 1) \cup (1, 4) \cup (4, \infty)$
 C $(-\infty, -4) \cup (-4, 4) \cup (4, \infty)$ D $(-\infty, 4) \cup (4, \infty)$

6 On which set of open intervals does this polynomial keep a constant sign?

$$(x + 4)^4 x^3 (x - 2)^2$$

- A $(-\infty, 0) \cup (0, \infty)$ B $(-\infty, -4) \cup (-4, 0) \cup (0, \infty)$
 C $(-\infty, 0) \cup (0, 2) \cup (2, \infty)$ D $(-\infty, -3) \cup (-3, 0) \cup (0, \infty)$

7 On which set of open intervals does this polynomial keep a constant sign?

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

- A $(-\infty, -4) \cup (-4, -3) \cup (-3, -1) \cup (-1, \infty)$ B $(-\infty, -3) \cup (-3, -1) \cup (-1, \infty)$
 C $(-\infty, -3) \cup (-3, -1) \cup (-1, 1) \cup (1, \infty)$ D $(-\infty, -3) \cup (-3, -2) \cup (-2, -1) \cup (-1, \infty)$

8 On which set of open intervals does this polynomial keep a constant sign?

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

- A $(-\infty, -4) \cup (-4, 3) \cup (3, \infty)$ B $(-\infty, 3) \cup (3, \infty)$
 C $(-\infty, 1) \cup (1, 3) \cup (3, \infty)$ D $(-\infty, -3) \cup (-3, 3) \cup (3, \infty)$