



## Polynomial Inequalities - Expanded Quadratic - Intervals

1 On which set of open intervals does this polynomial keep a constant sign?  $x^2 + 2x - 3$

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

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

2 On which set of open intervals does this polynomial keep a constant sign?  $x^2 - 3x + 2$

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

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

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

$x^2 - 4$

A  $(-\infty, -2) \cup (-2, -1) \cup (-1, 2) \cup (2, \infty)$

B  $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$

C  $(-\infty, -3) \cup (-3, -2) \cup (-2, 2) \cup (2, \infty)$

D  $(-\infty, -4) \cup (-4, -2) \cup (-2, 2) \cup (2, \infty)$

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

$x^2 + 4x$

A  $(-\infty, -4) \cup (-4, -3) \cup (-3, 0) \cup (0, \infty)$

B  $(-\infty, -4) \cup (-4, -2) \cup (-2, 0) \cup (0, \infty)$

C  $(-\infty, -4) \cup (-4, 0) \cup (0, \infty)$

D  $(-\infty, -4) \cup (-4, -1) \cup (-1, 0) \cup (0, \infty)$

5 On which set of open intervals does this polynomial keep a constant sign?  $x^2 - 7x + 12$

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

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

6 On which set of open intervals does this polynomial keep a constant sign?  $x^2 + 3x - 4$

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

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

7 On which set of open intervals does this polynomial keep a constant sign?  $x^2 + 6x + 8$

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

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

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

$x^2 - 1$

A  $(-\infty, -1) \cup (-1, 1) \cup (1, \infty)$

B  $(-\infty, -3) \cup (-3, -1) \cup (-1, 1) \cup (1, \infty)$

C  $(-\infty, -4) \cup (-4, -1) \cup (-1, 1) \cup (1, \infty)$

D  $(-\infty, -2) \cup (-2, -1) \cup (-1, 1) \cup (1, \infty)$