Solve polynomial inequalities worksheet – Grade 12

Grade 12 · Mixed level · 20 questions · **Version X7664**

Name: _____ Date: _____ Score: ___ / 20

Scan to check answers + earn stars

Done the worksheet? Scan the code (or enter version X7664 on this skill's page at themathmeridian.com) to check your answers online and earn stars.

1. Solve $(x+3)(x+8) > 0$.
   A. −8 < x < −3 **B.** x < −8 or x > −3 **C.** −8 ≤ x ≤ −3 **D.** x ≤ −8 or x ≥ −3

2. Solve $-(x+4)(x-3) \le 0$.
   A. −4 ≤ x ≤ 3 **B.** x < −4 or x > 3 **C.** x ≤ −4 or x ≥ 3 **D.** −4 < x < 3

3. Solve $(x-3)(x+4) > 0$.
   A. x ≤ −4 or x ≥ 3 **B.** x < −4 or x > 3 **C.** −4 ≤ x ≤ 3 **D.** −4 < x < 3

4. Solve $-x(x-1) < 0$.
   A. x ≤ 0 or x ≥ 1 **B.** 0 < x < 1 **C.** x < 0 or x > 1 **D.** 0 ≤ x ≤ 1

5. Solve $(x+2)(x-5) > 0$.
   A. x < −2 or x > 5 **B.** −2 ≤ x ≤ 5 **C.** x ≤ −2 or x ≥ 5 **D.** −2 < x < 5

6. Solve $(x-1)(x-8) \ge 0$.
   A. 1 ≤ x ≤ 8 **B.** x < 1 or x > 8 **C.** x ≤ 1 or x ≥ 8 **D.** 1 < x < 8

7. Solve $(x-3)(x+1) > 0$.
   A. −1 < x < 3 **B.** x < −1 or x > 3 **C.** x ≤ −1 or x ≥ 3 **D.** −1 ≤ x ≤ 3

8. Solve $-(x-4)(x+4)(x-5) \le 0$.
   A. −4 ≤ x ≤ 4 or x ≥ 5 **B.** x ≤ −4 or 4 ≤ x ≤ 5 **C.** −4 < x < 4 or x > 5
   D. x < −4 or 4 < x < 5

9. Solve $-(x+3)(x+1)(x+5) \le 0$.
   A. x < −5 or −3 < x < −1 **B.** −5 < x < −3 or x > −1 **C.** −5 ≤ x ≤ −3 or x ≥ −1
   D. x ≤ −5 or −3 ≤ x ≤ −1

The Math Meridian

© The Math Meridian · themathmeridian.com · Free for personal and classroom use

10. Solve $(x+3)(x-5)(x+6) \leq 0$.

A. $-6 < x < -3$ or $x > 5$ **B.** $-6 \leq x \leq -3$ or $x \geq 5$ **C.** $x \leq -6$ or $-3 \leq x \leq 5$

D. $x < -6$ or $-3 < x < 5$

11. Solve $-(x-6)(x+7)(x+8) \leq 0$.

A. $-8 \leq x \leq -7$ or $x \geq 6$ **B.** $x < -8$ or $-7 < x < 6$ **C.** $-8 < x < -7$ or $x > 6$

D. $x \leq -8$ or $-7 \leq x \leq 6$

12. Solve $-(x-4)(x-3)(x-1) > 0$.

A. $x < 1$ or $3 < x < 4$ **B.** $1 \leq x \leq 3$ or $x \geq 4$ **C.** $1 < x < 3$ or $x > 4$ **D.** $x \leq 1$ or $3 \leq x \leq 4$

13. Solve $(x-5)(x+2)(x-6) < 0$.

A. $x \leq -2$ or $5 \leq x \leq 6$ **B.** $x < -2$ or $5 < x < 6$ **C.** $-2 \leq x \leq 5$ or $x \geq 6$

D. $-2 < x < 5$ or $x > 6$

14. Solve $(2x-3)(x+2) > 0$.

A. $-2 \leq x \leq 3/2$ **B.** $-2 < x < 3/2$ **C.** $x < -2$ or $x > 3/2$ **D.** $x \leq -2$ or $x \geq 3/2$

15. Solve $x^2 - 7x > 0$.

A. $x < 0$ or $x > 7$ **B.** $x \leq 0$ or $x \geq 7$ **C.** $0 < x < 7$ **D.** $0 \leq x \leq 7$

16. Solve $x^3 + 2x^2 - 35x \leq 0$.

A. $-7 \leq x \leq 0$ or $x \geq 5$ **B.** $x \leq -7$ or $0 \leq x \leq 5$ **C.** $-7 < x < 0$ or $x > 5$

D. $x < -7$ or $0 < x < 5$

17. Solve $x^2 + 6x - 16 < 0$.

A. $x \leq -8$ or $x \geq 2$ **B.** $-8 \leq x \leq 2$ **C.** $x < -8$ or $x > 2$ **D.** $-8 < x < 2$

18. Solve $(x+1)^2(x-5) \leq 0$.

A. $x < -1$ or $-1 < x < 5$ **B.** $x = -1$ or $x \geq 5$ **C.** $x > 5$ **D.** $x \leq 5$

19. Solve $(x+2)^2(x-7) < 0$.

A. $x < -2$ or $-2 < x < 7$ **B.** $x = -2$ or $x \geq 7$ **C.** $x \leq 7$ **D.** $x > 7$

20. Solve $x^2 + 12x + 32 > 0$.

A. $-8 < x < -4$ **B.** $-8 \leq x \leq -4$ **C.** $x < -8$ or $x > -4$ **D.** $x \leq -8$ or $x \geq -4$

The Math Meridian

Answer key · Version X7664

Solve polynomial inequalities worksheet – Grade 12 · Grade 12 · to reprint this sheet or check the answers, enter X7664 on the skill page.

1. **B (x < −8 or x > −3)**
2. **C (x ≤ −4 or x ≥ 3)**
3. **B (x < −4 or x > 3)**
4. **C (x < 0 or x > 1)**
5. **A (x < −2 or x > 5)**
6. **C (x ≤ 1 or x ≥ 8)**
7. **B (x < −1 or x > 3)**
8. **A (−4 ≤ x ≤ 4 or x ≥ 5)**
9. **C (−5 ≤ x ≤ −3 or x ≥ −1)**
10. **C (x ≤ −6 or −3 ≤ x ≤ 5)**
11. **A (−8 ≤ x ≤ −7 or x ≥ 6)**
12. **A (x < 1 or 3 < x < 4)**
13. **B (x < −2 or 5 < x < 6)**
14. **C (x < −2 or x > 3/2)**
15. **A (x < 0 or x > 7)**
16. **B (x ≤ −7 or 0 ≤ x ≤ 5)**
17. **D (−8 < x < 2)**
18. **D (x ≤ 5)**
19. **A (x < −2 or −2 < x < 7)**
20. **C (x < −8 or x > −4)**

The Math Meridian