# Practice for Polys SF, LC, deg, multiply, combine, x-int, max, min, sketch

**Find the leading coefficient, degree and constant for the following.**

1) $-10x^3 - 8x^5 + 2$

2) $-5r + 4r^4 - 9$

3) $3k - 4k^3$

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

5) $3k^4 - 2 + 5k$

6) $5n^3 - 8 + 7n^4$

**Simplify each expression by combining like terms.**

7) $-4p^4 + 7p^3 - 8p^4 - 7p^3 + 8$

8) $7 - 5k^3 + k^2 + 8 - 3k^3$

9) $\left(6x^4 - 3x^2\right) - \left(-4x^4 - 8x^2 + 2x\right)$

10) $\left(-8a^2 - 5\right) + \left(6 - 3a^4 + 2a^2\right)$

**Rewrite the following polynomial in standard form.**

11) $10 + 4v^4 + 6v$

12) $7n + 9n^2 - 2$

13) $3r + 9r^2 + 2$

14) $-6k^2 - 6 + 5k$

15) $-6p^2 - 6p^3 - 2p$

16) $7p - 7 - 7p^2$

**Evaluate each function at the given value.**

17) $f(m) = -m^2 + 2m + 17$ at $m = 6$

18) $f(x) = x^3 - 11x - 13$ at $x = 4$

19) $f(a) = -3a^3 + 13a^2 - 7a + 3$ at $a = 4$

20) $f(a) = a^4 + 7a^3 + 7a^2 - 9a + 1$ at $a = -2$

21) $f(n) = n^3 - 11n^2 + 35n - 36$ at $n = 6$

22) $f(n) = n^3 - 5n^2 - 4$ at $n = 5$

**Find each product.**

23) $6n(-5n + 6)$

24) $(8x - 6)(-3x - 6)$

25) $(4x - 1)(x^2 - 6x + 7)$

26) $-8k(2k^2 - 7k + 7)$

27) $(x - 2)(5x + 7)$

28) $(-4x + 5)(-4x - 7)$

**Find the values which make the equation true.**

29) $(3x - 2)(x + 5) = 0$

30) $(2x - 5)(x + 5) = 0$

31) $(3x + 1)(x + 2) = 0$

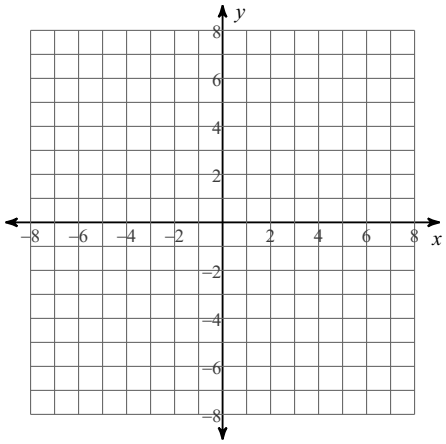
32) $(5x + 2)(x + 3) = 0$

33) $(3x - 5)(x + 1) = 0$

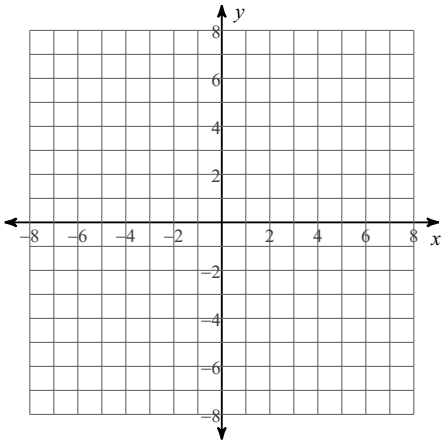
34) $(2x + 1)(x + 3) = 0$

**Sketch the graph of each function. Identify the zeros (x-intercepts) using technology.**

35) $f(x) = x^3 - 4x^2 + 6$

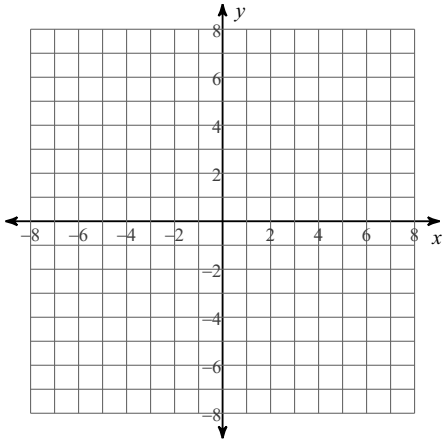



36) $f(x) = x^3 - 3x^2 + 4$

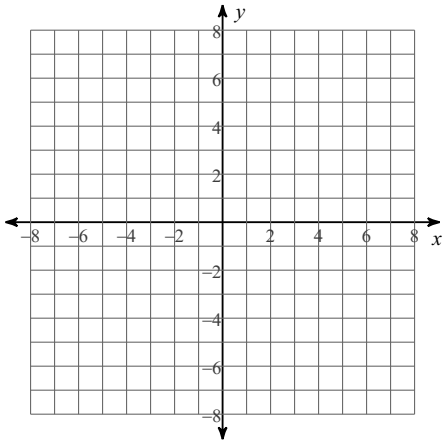



**Sketch the graph of each function. Identify the relative maximums using technology.**

37) $f(x) = x^4 - x^2 + x + 2$

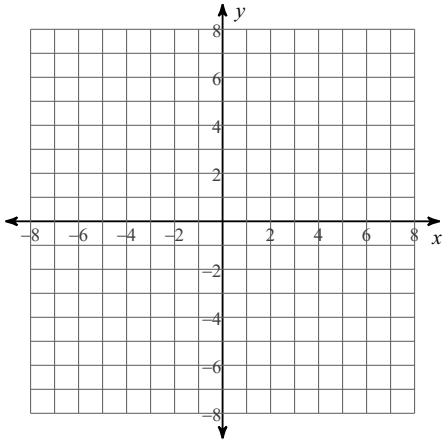


38) $f(x) = x^4 - 4x^2 - 2x + 1$




**Sketch the graph of each function. Identify the relative minimums using technology.**

39) $f(x) = -x^3 + 3x^2 - 6$




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