

## Polynomial Worksheet

Date \_\_\_\_\_ Period \_\_\_\_\_

**Name each polynomial by degree and number of terms. If not in standard form, put into standard form.**

1)  $-10x^2$

2)  $-9x^2 + 3x + 4$

3)  $8$

4)  $7x$

5)  $-3p^4 - 5 - 9p^3 + 8p^5$

6)  $-9m^6 - 5m^3 - 5m^4$

7)  $7r^4 - 6$

8)  $-5n - 10n^4$

9)  $2x + 2x^3$

10)  $2 + 7x + 8x^4$

**Simplify each expression.**

11)  $(2 + 5v^4) - (1 - 5v^4)$

12)  $(r^2 - 2r^4) + (-5r^2 - 4r^4)$

13)  $(-5x^3 - 3x + x^4) + (x^3 - x^4)$

14)  $(-a^3 + 3 - 3a) + (-4a^3 + 5a)$

15)  $(3k + 6 + 3k^3) - (-6k + 8 + 2k^3)$

16)  $(-r + r^3 - 4r^4) - (-4r^4 - 6r^3 - 3r)$

17)  $(3n^3 + 7n^4) + (-3n - 8n^4 + 4n^3) + (2n + n^4)$

18)  $(3x^2 - 6x^4) + (6x^3 - 5x^2 - 2x^4) - (4x^4 + 3x^2)$

19)  $(-4 + 4x - 5x^3) + (4x + x^3 + 5) - (8 - 5x^3)$

20)  $(2n^2 + 2n^4 - 6n^3) + (-n^2 + 6n + 4) - (-6n^2 - 4n^4)$

**Find each product.**

21)  $-5(-k - 3)$

22)  $-5n(2n - 7)$

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

24)  $(3n - 5)(-6n - 7)$

25)  $(7x + 1)(-2x + 1)$

26)  $(-m - 1)(6m + 7)$

27)  $(-5x + 3)(-2x^2 + 2x - 5)$

28)  $(4n - 7)(7n^2 - 4n + 7)$

$$29) (5p^2 + 8p - 5)(5p^2 - p - 2)$$

$$30) (-8n^2 + 7n - 1)(n^2 - 6n - 3)$$

**Perform the indicated operation.**

$$31) \begin{aligned} h(x) &= 3x - 4 \\ g(x) &= -2x + 2 \\ \text{Find } (h + g)(x) \end{aligned}$$

$$32) \begin{aligned} g(a) &= 3a + 3 \\ h(a) &= 2a - 5 \\ \text{Find } (g + h)(a) \end{aligned}$$

$$33) \begin{aligned} g(x) &= x^3 - 4x \\ h(x) &= 2x - 2 \\ \text{Find } g(x) + h(x) \end{aligned}$$

$$34) \begin{aligned} g(x) &= -2x + 1 \\ f(x) &= x - 5 \\ \text{Find } (g - f)(x) \end{aligned}$$

$$35) \begin{aligned} g(x) &= 3x - 4 \\ f(x) &= 2x + 2 \\ \text{Find } (g - f)(x) \end{aligned}$$

$$36) \begin{aligned} g(n) &= 2n - 5 \\ f(n) &= n^2 - 3 \\ \text{Find } g(n) - f(n) \end{aligned}$$

$$37) \begin{aligned} f(n) &= -2n - 3 \\ g(n) &= -2n^3 - 4n \\ \text{Find } f(n) \cdot g(n) \end{aligned}$$

$$38) \begin{aligned} g(n) &= n^2 + 3 \\ f(n) &= 2n + 4 \\ \text{Find } g(n) \cdot f(n) \end{aligned}$$

$$39) \begin{aligned} f(x) &= 4x - 4 \\ g(x) &= x^2 + 4x \\ \text{Find } f(x) \cdot g(x) \end{aligned}$$

$$40) \begin{aligned} h(n) &= 2n + 3 \\ g(n) &= n^2 + 5 - 2n \\ \text{Find } (h \cdot g)(n) \end{aligned}$$

$$41) \begin{aligned} g(x) &= x^3 + 3x \\ f(x) &= 3x + 1 \\ \text{Find } (g \circ f)(x) \end{aligned}$$

$$42) \begin{aligned} f(a) &= a^2 + 3a \\ g(a) &= -3a - 1 \\ \text{Find } (f \circ g)(a) \end{aligned}$$

$$43) \begin{aligned} f(n) &= n - 2 \\ g(n) &= 4n - 1 \\ \text{Find } f(g(n)) \end{aligned}$$

$$44) \begin{aligned} g(x) &= 3x + 5 \\ h(x) &= -4x + 5 \\ \text{Find } g(h(x)) \end{aligned}$$

$$45) \begin{aligned} g(x) &= 3x - 1 \\ h(x) &= x^3 + 3x \\ \text{Find } (g \circ h)(x) \end{aligned}$$

$$46) \begin{aligned} h(n) &= 2n - 4 \\ g(n) &= 4n - 3 \\ \text{Find } (h \circ g)(n) \end{aligned}$$

$$47) \begin{aligned} f(n) &= 3n - 3 \\ g(n) &= n^2 + 3 + 2n \\ \text{Find } f(g(n)) \end{aligned}$$

$$48) \begin{aligned} g(a) &= a^3 - 3a \\ \text{Find } (g \circ g)(a) \end{aligned}$$

$$49) \begin{aligned} g(n) &= n^2 + 5n \\ f(n) &= -4n - 1 \\ \text{Find } g(f(n)) \end{aligned}$$

$$50) \begin{aligned} g(n) &= 4n - 3 \\ h(n) &= -4n - 5 \\ \text{Find } (g \circ h)(n) \end{aligned}$$