

Polynomials

Date _____ Period _____

Simplify each expression.

1) $(4r^2 + 1) - (4 + 5r^2)$

$$-r^2 - 3$$

2) $(x - 3x^4) - (2x + 8x^4)$

$$-11x^4 - x$$

3) $(m^3 - 7m^4) - (8m^4 + 4m^3 + 7m)$

$$-15m^4 - 3m^3 - 7m$$

4) $(-3 - 3r) + (1 - r^3 - 4r)$

$$-r^3 - 7r - 2$$

5) $(-7 - 5b^2) - (-8b^2 - 3) - (-4b^3 - b^2)$

$$4b^3 + 4b^2 - 4$$

6) $(7x^2 + 4x^3) - (-5x^3 + 3x) - (-x^3 + 5x^2)$

$$10x^3 + 2x^2 - 3x$$

7) $(-7x^2 - 4) + (-4x^2 - 6 - 7x^3) - (7 - 2x^2)$

$$-7x^3 - 9x^2 - 17$$

8) $(-2n^4 + 2) + (n - n^4 + 4) - (2 - n)$

$$-3n^4 + 2n + 4$$

9) $(-7x^4 + 8x - x^2) - (-5x^4 - 2x^2 + 2x) + (7x - 2x^4 + 2x^2)$

$$-4x^4 + 3x^2 + 13x$$

10) $(-2r^2 - 3 - 4r^4) + (1 - 3r^4 + 8r^2) + (-5r^4 + 7r^2 - 4)$

$$-12r^4 + 13r^2 - 6$$

Find each product.

11) $2a(2a - 1)$

$$4a^2 - 2a$$

12) $4(3k + 2)$

$$12k + 8$$

13) $(6p + 6)(2p - 2)$

$$12p^2 - 12$$

14) $(x + 4)(8x - 6)$

$$8x^2 + 26x - 24$$

15) $(3n - 8)(6n^2 - 3n - 5)$

$$18n^3 - 57n^2 + 9n + 40$$

16) $(5m + 6)(5m^2 - 7m - 6)$

$$25m^3 - 5m^2 - 72m - 36$$

17) Find the perimeter of a rectangle with a length of $4x^2 - 7x - 8$ and a width of $4x - 3$.

$$8x^3 - 6x^2 - 22x$$

18) Find the perimeter of a square with a side length of $2x + 4$.

$$8x + 16$$

19) Find the area of a rectangle with a length of $4x^2 - 7x - 8$ and a width of $4x - 3$.

$$16x^3 - 40x^2 - 11x + 24$$

20) Find the area of a square with a side length of $8n - 4$.

$$64n^2 - 64n + 16$$
$$(8n - 4)(8n - 4)$$

$$64n^2 - \underline{32n - 32n} + 16$$