

Unit 1 Review (Polynomials)

Period _____

Simplify each sum.

1) $(5n^3 - 4n^2) + (5n^3 - 6n^2 - 8n^4)$

2) $(8n^3 - 7n^4 - 4) + (6n^3 + 1 + 3n^4)$

Simplify each difference.

3) $(8k - 4k^4 + 4k^2) - (4k^2 - 5k^4)$

4) $(6v^4 + 4v - 1) - (6 + v^4 + 5v)$

Simplify each expression.

5) $(8 - 6x^2 + 2x^4) - (?) = 3x^4 + 2x^2 + 2$

6) $(?) - (3r + 2r^2 + r^3) = 8r^4 + r^3 - 2r^2 - 9r$

Find each product.

7) $3(x + 1)$

8) $(6n - 7)(8n + 1)$

9) $(8m - 2)(6m^2 + 5m + 1)$

10) $(2p^2 - 5p + 2)(4p^2 + 5p - 3)$

Factor each completely.

11) $27x^2 + 48y^2$

12) $2x^3 + 12x^2$

13) $192x^3 + 81$

14) $7n^2 + 12n + 5$

15) $21m^2 - 36m - 81$

16) $24u^3 - 375$

17) $r^2 - 7r - 18$

18) $4x^3 - 16x^2 + 16x$

19) $m^2 - 9n^2$

20) $9u^2 + 16v^2$

21) $64x^3 - 125$

Expand completely.

22) $(b + 3)^5$

23) $(a - 3b)^4$

24) A rectangle has a width of $x + 1$ units and a length of $x^2 - 2$ units. Find an expression to represent both the AREA and PERIMETER of the rectangle in standard form. (NO work, NO credit)

Unit 1 Review (Polynomials)

Period _____

Simplify each sum.

$$1) (5n^3 - 4n^2) + (5n^3 - 6n^2 - 8n^4)$$

$$-8n^4 + 10n^3 - 10n^2$$

$$2) (8n^3 - 7n^4 - 4) + (6n^3 + 1 + 3n^4)$$

$$-4n^4 + 14n^3 - 3$$

Simplify each difference.

$$3) (8k - 4k^4 + 4k^2) - (4k^2 - 5k^4)$$

$$k^4 + 8k$$

$$4) (6v^4 + 4v - 1) - (6 + v^4 + 5v)$$

$$5v^4 - v - 7$$

Simplify each expression.

$$5) (8 - 6x^2 + 2x^4) - (?) = 3x^4 + 2x^2 + 2$$

$$-x^4 - 8x^2 + 6$$

$$6) (?) - (3r + 2r^2 + r^3) = 8r^4 + r^3 - 2r^2 - 9r$$

$$8r^4 + 2r^3 - 6r$$

Find each product.

$$7) 3(x + 1)$$

$$3x + 3$$

$$8) (6n - 7)(8n + 1)$$

$$48n^2 - 50n - 7$$

$$9) (8m - 2)(6m^2 + 5m + 1)$$

$$48m^3 + 28m^2 - 2m - 2$$

$$10) (2p^2 - 5p + 2)(4p^2 + 5p - 3)$$

$$8p^4 - 10p^3 - 23p^2 + 25p - 6$$

Factor each completely.

$$11) 27x^2 + 48y^2$$

$$3(3x + 4iy)(3x - 4iy)$$

$$12) 2x^3 + 12x^2$$

$$2x^2(x + 6)$$

13) $192x^3 + 81$

$3(4x + 3)(16x^2 - 12x + 9)$

14) $7n^2 + 12n + 5$

$(7n + 5)(n + 1)$

15) $21m^2 - 36m - 81$

$3(7m + 9)(m - 3)$

16) $24u^3 - 375$

$3(2u - 5)(4u^2 + 10u + 25)$

17) $r^2 - 7r - 18$

$(r + 2)(r - 9)$

18) $4x^3 - 16x^2 + 16x$

$4x(x - 2)^2$

19) $m^2 - 9n^2$

$(m + 3n)(m - 3n)$

20) $9u^2 + 16v^2$

$(3u + 4iv)(3u - 4iv)$

21) $64x^3 - 125$

$(4x - 5)(16x^2 + 20x + 25)$

Expand completely.

22) $(b + 3)^5$

$b^5 + 15b^4 + 90b^3 + 270b^2 + 405b + 243$

23) $(a - 3b)^4$

$a^4 - 12a^3b + 54a^2b^2 - 108ab^3 + 81b^4$

24) A rectangle has a width of $x + 1$ units and a length of $x^2 - 2$ units. Find an expression to represent both the AREA and PERIMETER of the rectangle in standard form. (NO work, NO credit)

Area: $x^3 + x^2 - 2x - 2$ Perimeter: $2x^2 + 2x - 2$