

Unit 8 Study Guide

Name each polynomial by degree and number of terms.

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

4th degree polynomial

3) 5

constant monomial

Simplify each expression.

5) $(4 + 3p^2 + 7p) + (5p - 7p^2 + 7p^4)$

$$7p^4 - 4p^2 + 12p - 4$$

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

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

$$-11p^4 + p^2 - 2p$$

Find each product.

9) $2x(3x^2 - 8x - 7)$

$$6x^3 - 16x^2 - 14x$$

11) $(3n - 5)(2n + 8)$

$$6n^2 + 24n - 10n - 40$$

$$6n^2 + 14n - 40$$

13) $(8n - 3)(8n - 1)$

$$64n^2 - 8n - 24n + 3$$

$$64n^2 - 32n + 3$$

15) $(7b - 3)(7b + 3)$

$$49b^2 + 21b - 21b - 9$$

$$49b^2 - 9$$

17) $(b + 4)^2$

$$(b + 4)(b + 4)$$

$$b^2 + 4b + 4b + 16$$

$$b^2 + 8b + 16$$

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

cubic trinomial

4) $2x - 4$

linear binomial

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

$$-10x^4 - 9x^2$$

8) $(-8n^4 - 3 + n^2) - (-5 + 4n^2 - 7n^4)$

$$-8n^4 - 3 + n^2 + 5 - 4n^2 + 7n^4$$

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

10) $4n(8m - 3n)$

$$32mn - 12n^2$$

12) $(4k - 2)(2k - 2)$

$$8k^2 - 8k - 4k + 4$$

$$8k^2 - 12k + 4$$

14) $(x - 5y)(7x + 6y)$

$$7x^2 + 6xy - 35xy - 30y^2$$

$$7x^2 - 29xy - 30y^2$$

16) $(3k - 1)^2$

$$(3k - 1)(3k - 1)$$

$$9k^2 - 3k - 3k + 1 \rightarrow 9k^2 - 6k + 1$$

18) $(6x + 6)(6x - 6)$

$$36x^2 - 36x + 36x - 36$$

$$36x^2 - 36$$

19) $(r-4)(7r^2-8r-3)$

$$7r^3 - 8r^2 - 3r + 28r^2 + 32r + 12$$

$$7r^3 - 36r^2 + 29r + 12$$

Factor each completely.

21) $-50p^3 + 60p^2$

$$-10p^2(5p-6)$$

23) $x^2 - 5x - 24$ 2, 12
4, 6
8, 3

$$(x-8)(x+3)$$

25) $a^2 + 6a - 27$ 9, 3

$$(a+9)(a-3)$$

27) $-4x^2 + 12x - 8$

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

$$-4(x-1)(x-2)$$

29) $3b^2 - 28b + 60$

$$\begin{array}{l} 180 \\ -18 \times -10 \\ -28 \end{array} \quad \begin{array}{l} (3b^2 - 18b) - 10b + 60 \\ 3b(b-6) - 10(b-6) \end{array}$$

$$(b-6)(3b-10)$$

31) $\sqrt{16m^4} - \sqrt{1}$

$$\sqrt{4m^2} \sqrt{1} (4m^2 + 1)$$

$$(2m+1)(2m-1)(4m^2+1)$$

33) $n^2 + 10n + 25$

20) $(6m^2 + 5m + 4)(3m^2 + 6m + 2)$

	$3m^2$	$6m$	2
$6m^2$	$18m^4$	$36m^3$	$12m^2$
$5m$	$15m^3$	$30m^2$	$10m$
4	$12m^2$	$24m$	8

$$18m^4 + 51m^3 + 54m^2 + 24m + 8$$

22) $-10x^2 - 10$

$$-10(x^2 + 1)$$

24) $n^2 - 10n + 25$ 5, 5

$$(n-5)(n-5) \text{ or } (n-5)^2$$

26) $2x^2 - 10x - 72$

$$2(x^2 - 5x - 36)$$

6, 6
9, 4
12, 3

$$2(x-9)(x+4)$$

28) $3n^2 - 16n - 12$

$$n^2 - 16n - 36$$

6, 6
9, 4
12, 3
18, 2

$$(n-18)(n+2)$$

$$(n-6)(3n+2)$$

30) $6k^2 - 40k - 64$

$$2(3k^2 - 20k - 32)$$

$$2(k^2 - 20k - 96)$$

24, 4
3, 32

$$2(k-24)(k+4)$$

$$\rightarrow 2(k-8)(3k+4)$$

32) $\sqrt{x^2} - \sqrt{9}$

$$(x-3)(x+3)$$

34) $\sqrt{9x^2} - \sqrt{25y^2}$

$$(3x-5y)(3x+5y)$$