Chapter 11 Review

Name KEY

Polynomials

decreasing order of exponents

Write each polynomial in standard form. Then, name each polynomial by degree and number of terms.

highest exponent

1) $7mn^2$

Degree: 1+2=3 → cubic

Terms: 1 → monomial

$7mn^2$

2) $-5x^3y^2$

Degree: 3+2=5 → quintic

Terms: 1 → monomial

$-5x^3y^2$

3) $10m^6$

Degree: 6 → 6th degree

Terms: 1 → monomial

$10m^6$

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

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

Degree: 3 → cubic

Terms: 4 → polynomial with four terms

5) $-x^3-6$

$-x^3-6$

Degree: 3 → cubic

Terms: 2 → binomial

6) $-3-10a^5-10a^7$

$-10a^7-10a^5-3$

Degree: 7 → 7th degree

Terms: 3 → trinomial

Simplify each sum or difference.

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

$-10x^4+2x^3+x^2$

8) $(2m^2+8m-5m^4)+(6m^2-7m+6m^4)$

m^4+8m^2+m

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

$4m^3+13m^2+m+2$

10) $(6n^2-6n^3+4n)-(2n^3+n^2-2n)$

$-8n^3+5n^2+6n$

11) $(6-5r-7r^2)-(r+4r^3+4)$

$-4r^3-7r^2-6r+2$

12) $(2p-p^2-3p^3)-(4p^2+6p+3p^3)$

$-6p^3-5p^2-4p$

13) $(4-7x^3+6x^3)+(6x^2-2-x+x^3)$

$-6x^3+12x^2-x+2$

14) $(5x^2-2x^3-4)-(x^2-2x^3-5+8x^4)$

$-8x^4+0x^3+4x^2+1$

$-8x^4+4x^2+1$

Find each product.

15) $(5b-6)(2b+3)$

	2b	3
5b	$10b^2$	15b
-6	-12b	-18

$10b^2+3b-18$

16) $(8r+6)(5r-1)$

	5r	-1
8r	$40r^2$	-8r
6	30r	-6

$40r^2+22r-6$

17) $(r+8)^2 = (r+8)(r+8)$

	r	8
r	r^2	8r
8	8r	64

$r^2+16r+64$

18) $(6x+4)(6x-7)$

	6x	-7
6x	$36x^2$	-42x
4	24x	-28

$36x^2-18x-28$

19) $(2v-7)(7v^2-7v+8)$

	$7v^2$	-7v	8
2v	$14v^3$	$-14v^2$	16v
-7	$-49v^2$	49v	-56

$14v^3-63v^2+65v-56$

20) $(4v^2+7v+4)(3v^2+v-3)$

	$3v^2$	v	-3
$4v^2$	$12v^4$	$4v^3$	$-12v^2$
7v	$21v^3$	$7v^2$	-21v
4	$12v^2$	4v	-12

$12v^4+25v^3+7v^2-17v-12$

Factor each.

21) x^2-x-2 — 2 : 2 1

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

1x, $\frac{-2x}{-x}$ ☺

22) x^2-4x+3 — 3 : 1 3

$(x-1)(x-3)$

-1x, $\frac{-3x}{-4x}$ ☹

23) x^2+2x-8 — 8 : 1 8, 2 4

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

4x, $\frac{-2x}{2x}$ ☺

24) $x^2-9 = x^2+0x-9$ — 9 : 1 9, 3 3

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

3x, $\frac{-3x}{0x}$ ☺

25) $5x^2-17x+6$ — 6 : 1 6, 2 3

$(5x-2)(x-3)$

-2x, $\frac{-15x}{-17x}$ ☹

26) $3x^2+7x+2$ — 2 : 1 2

$(3x+1)(x+2)$

1x, $\frac{6x}{7x}$ ☺

27) $4x^2-25 = 4x^2+0x-25$ — 25 : 1 25, 5 5

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

10x, $\frac{-10x}{0x}$ ☺

28) $6x^2+11x-10$ — 10 : 1 10, 2 5

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

15x, $\frac{-4x}{11x}$ ☺

29) $2x^3-5x^2+8x-20$

$\frac{(2x^3-5x^2)}{x^2}+\frac{(8x-20)}{4}$

$x^2(2x-5)+4(2x-5)$

$(x^2+4)(2x-5)$

30) $4x^3-3x^2+16x-12$

$\frac{(4x^3-3x^2)}{x^2}+\frac{(16x-12)}{4}$

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

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

31) $10x^3-8x^2-25x+20$

$\frac{(10x^3-8x^2)}{2x^2}+\frac{(-25x+20)}{-5}$

$2x^2(5x-4)+-5(5x-4)$

$(2x^2-5)(5x-4)$

32) $12x^3-3x^2+16x-4$

$\frac{(12x^3-3x^2)}{3x^2}+\frac{(16x-4)}{4}$

$3x^2(4x-1)+4(4x-1)$

$(3x^2+4)(4x-1)$