

REVIEW: Polynomial Operations

Part 1: Classify each polynomial by degree and number of terms.

degree

1.) $2x+1$

linear

2.) $8x^3+2x^2+3x-7$

cubic

3.) -130

constant

4.) $4a^2+7a-10$

quadratic

terms

binomial

polynomial

monomial

trinomial

Part 2: Put the expression in standard form and answer the following questions.

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

Standard form: $-x^3 + 4x^2 - x - 2$

Name by number of terms: polynomialDegree: 3Name by degree: cubicLeading Coefficient: -1Part 3: Add these polynomials. Only combine things that are alike (have the same exponent).

8.) $(4x^2 - 6x + 7) + (-19x^2 - 15x - 18)$

$-15x^2 - 21x - 11$

9.) $(9x^6 - 4x^5) + (10x^5 - 15x^4 + 14)$

$9x^6 + 6x^5 - 15x^4 + 14$

Part 4: Subtract these polynomials.

10.) $(6x + 14) - (9x + 5)$

$6x + 14 - 9x - 5$

$-3x + 9$

11.) $(19x^2 + 9x + 16) - (5x^2 + 12x + 7)$

$19x^2 + 9x + 16 - 5x^2 - 12x - 7$

$14x^2 - 3x + 9$

12.) $(17x^2 + 7x - 14) - (-6x^2 - 5x - 18)$

$17x^2 + 7x - 14 + 6x^2 + 5x + 18$

$23x^2 + 12x + 4$

Part 5: Multiply the following polynomials.

13.) $-x^2(x+5)$
 $-x^3 - 5x^2$

14.) $3x^2(4x^3 - 5x + 10)$
 $12x^5 - 15x^3 + 30x^2$

15.) $(x-3)(x+4)$
 $x^2 + 4x - 3x - 12$
 $x^2 + x - 12$

16.) $(3x-1)(x+5)$

$3x - 1$

x	$3x^2$	$-x$
+5	$15x$	-5

 $3x^2 - x + 15x - 5$
 $3x^2 + 14x - 5$

17.) $(2x-3)(4x^2+8x-2)$
 $8x^3 + 16x^2 - 4x - 12x^2 - 24x + 6$
 $8x^3 + 4x^2 - 28x + 6$

18.) $(2x-1)^2$
 $(2x-1)(2x-1)$
 $4x^2 - 2x - 2x + 1$
 $4x^2 - 4x + 1$

19.) $2x(x^2-3) + (x+4)(x^2-5)$

$2x^3 - 6x + x^3 - 5x + 4x^2 - 20$
 $3x^3 + 4x^2 - 11x - 20$

20.) The length of a rectangle is 3 less than 7 times the width.

a. Write an expression for the length of the rectangle.

$l = 7w - 3$



$l = 7w - 3$

b. Find the perimeter of the rectangle.

$P = l + l + w + w = (7w - 3) + (7w - 3) + w + w$

$P = 16w - 6$

c. Find the area of the rectangle.

$A = (7w - 3)(w)$

$A = 7w^2 - 3w$

Part 6: Simplify, Add, Subtract, and Multiply Radicals and Radical Expressions (Do the evens; odds are just extra practice if you need it ☺)

1. $\sqrt{18} < \overset{9}{2}$
 $3\sqrt{2}$

2. $\sqrt{125} < \overset{5}{25}$
 $5\sqrt{5}$

3. $\sqrt{72} < \overset{9}{8} < \overset{2}{4}$
 $6\sqrt{2}$

4. $\sqrt{180} < \overset{10}{10} < \overset{2}{5}$
 $6\sqrt{5}$

5. $\sqrt{a^3} = a \cdot a$
 $a\sqrt{a}$

6. $\sqrt{b^7} = b \cdot b \cdot b \cdot b \cdot b$
 $b^3\sqrt{b}$

7. $\sqrt{m^{11}} = m^{10} \cdot m^1$
 $m^5\sqrt{m}$

8. $\sqrt{75x^7y^5}$
 $5x^3y^2\sqrt{3xy}$

9. $\sqrt{27a^{11}b^7}$
 $3a^5b^3\sqrt{3ab}$

10. $\sqrt{32a^7b^4}$
 $4a^3b^2\sqrt{2a}$

11. $\sqrt{9a^8}$
 $3a^4$

12. $\sqrt{45a^7} = a^6 \cdot a^1$
 $3a^3\sqrt{5a}$

13. $\sqrt{36x^2y^6}$
 $6xy^3$

14. $\sqrt{12x^{20}y^8}$
 $2x^{10}y^4\sqrt{3}$

15. $-\sqrt{200}$
 $-10\sqrt{2}$

16. $\sqrt{196}$
 14

17. $\sqrt{63x^4y}$
 $3x^2\sqrt{7y}$

18. $\sqrt{6x^3}$
 $x\sqrt{6x}$

19. $\sqrt{100x^2y}$
 $10x\sqrt{y}$

20. $\sqrt{80x^{100}y^4}$
 $4x^{50}y^2\sqrt{2}$

21. $3\sqrt{45} - 12\sqrt{27}$
 $9\sqrt{5} - 36\sqrt{3}$

22. $2\sqrt{720} = 2 \cdot 2 \cdot 2 \cdot 3 \cdot \sqrt{5}$
 $24\sqrt{5}$

23. $-15\sqrt{40} < \overset{4}{10} < \overset{2}{5}$
 $-30\sqrt{10}$

24. $7\sqrt{108}$
 $42\sqrt{3}$

25. $7\sqrt{2} - 10\sqrt{2}$
 $-3\sqrt{2}$

26. $8\sqrt{7} - 5\sqrt{7} + 12\sqrt{7}$
 $15\sqrt{7}$

27. $\sqrt{13} + 3\sqrt{13} - 9\sqrt{13}$
 $-5\sqrt{13}$

28. $2\sqrt{27} + 5\sqrt{3}$
 $6\sqrt{3} + 5\sqrt{3}$
 $11\sqrt{3}$

29. $2\sqrt{20} - \sqrt{500}$
 $4\sqrt{5} - 10\sqrt{5}$
 $-6\sqrt{5}$

30. $3\sqrt{24} - 2\sqrt{384} - \sqrt{96}$
 $6\sqrt{6} - 16\sqrt{6} - 4\sqrt{6}$
 $-14\sqrt{6}$

Review - Unit 1 Test 2

31. $(3\sqrt{5})(8\sqrt{2} + \sqrt{3})$

$$24\sqrt{10} + 3\sqrt{15}$$

32. $(2\sqrt{6})(\sqrt{3} - \sqrt{6})$

$$2\sqrt{6 \cdot 3} - 2(6)$$

$$6\sqrt{2} - 12$$

33. $(-5\sqrt{10})(-6\sqrt{15})$

$$+ 30\sqrt{10 \cdot 15}$$

$$30\sqrt{2 \cdot 5 \cdot 5 \cdot 3}$$

$$150\sqrt{6}$$

34. $(-4\sqrt{2})(3\sqrt{2})$

$$-12(2) = -24$$

35. $(3\sqrt{2})^2$

$$(3\sqrt{2})(3\sqrt{2})$$

$$9(2) = 18$$

36. $(2 + 2\sqrt{3})(5 - \sqrt{3})$

$$10 - 2\sqrt{3} + 10\sqrt{3} - 2(3)$$

$$10 + 8\sqrt{3} - 6$$

$$4 + 8\sqrt{3}$$