7-29-14

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CRN 10113 sec. 83 file copy 1-2-3

TEST 3 SU14 CRN 10113 SEC 83
SEC. 4.1 AND 4.2
1. Simplify. $x^8 \cdot x^9$
2. Simplify after dividing. x^8 / x^6
3. Simplify. $(a^8 \cdot b^7) \cdot (a^4 \cdot b^5)$
4. $(a^3)^4$
5. $(a^3 \cdot b^5)^2$
6. $(a^3 \cdot b^2) \cdot (a^4 \cdot b^3)^2$
7. COMBINE LIKE TERMS. $9x - 2x^2 - 4x^2 + 2x$
8. COMBINE LIKE TERMS. $12x - 4x^2 + 2x$
9. COMBINE LIKE TERMS. $8x^7 + 6x^4 + 2x^2 + 10 + 4x^2 + 2x + 10$
SEC. 4.3 , 4.4, 4.5
10. SEC. 4.3: Add: $(2x^2 - 4x + 15) + (20x^2 + 14x - 14)$
11. SEC. 4.3: Subtract: $(22x^2 - 4x + 15) - (20x^2 - 14x - 14)$
12. SEC. 4.4: Multiply. $(2a^3 \cdot b^2) \cdot (3a^4 \cdot b^3)$
13. SEC. 4.4/4.5: Multiply. $(x + 5) \cdot (x + 2)$. **USE FOIL.**
14. SEC. 4.4/4.5: Multiply. $(x - 5) \cdot (x + 2)$. **USE FOIL.**
15. SEC. 4.4/4.5: Multiply. $(x - 5) \cdot (x - 2)$. **USE FOIL.**
16. SEC. 4.5: Multiply. $(2n + 5) \cdot (2n - 5)$
SEC. 4.5
17. Multiply out and collect like terms. $(x - 2)(x - 2)$. **USE FOIL.**
18. Multiply out and collect like terms. USE FOIL. $(x + 2)(x + 2)$
SEC. 4.6
19. Add. $(2x^2y - 4xy + 15y) + (20x^2y + 14xy - 14y)$
SEC. 4.7
20. Divide using long hand division : $(x^2 + 8x - 13) \div (x + 4)$
SEC. 4.8
21. **(a) Express the fraction using positive exponents.** $1/x^{-6}$ **(b) Express the fraction using negative exponents.** $1/x^5$
22. Express with positive exponents in the final answer. Then simplify. $2^{-7} \cdot 2^4$.
23. Simplify. Express with positive exponents in the final answer.

$\frac{8x^{-6}}{2y^{-10}}$

24. SCIENTIFIC NOTATION:
(a) Convert to decimal notation. $8.13x10^3$. Hint: Do you move the decimal point 3 places to the right or 3 places to the left? If you can answer this question you should get the problem correct.
(b) Convert to decimal notation. $8.92x10^{-2}$. Hint: Do you move the decimal point 2 places to the right or 2 places to the left? If you can answer this question you should get the problem correct.
(c) Convert to scientific notation. 310 Hint. You can write 310 as 310. with DECIMAL POINT AFTER THE ZERO. Do you move the decimal point 2 places to the right or 2 places to the left?

Sec. 5.1

25. FACTOR: $6x - 18$

26. FACTOR: $x^3 + 7x^2 + 2x$

27. FACTOR: $8x^4 - 16x^2 + 4x$

28. FACTOR: $X^5Y^5 + X^4Y^3 + X^3Y^3 + X^2Y^2$.

29. Factor. $x\cdot(x + 4) + 2\cdot(x + 4)$. Hint: What factor in parentheses ( ) is common to both terms?

30. FACTOR BY GROUPING. $x^3 + 3x^2 + 5x + 15$

Sec. 5.2

31. Factor completely. $x^2 + 7x + 12$. Hint. What two numbers multiply to 12 and add to 7?

32. Factor completely. $x^2 - 6x + 5$.

33. SECTION 5.3 : FACTOR: $3x^2 + 4x + 1$.

SEC. 5.4

34. Factor: $x^2 - 16$. Hint: $A^2 - B^2 = (A + B)(A - B)$

SEC. 5.5 GENERAL FACTORING STRATEGIES--

35. FACTOR: $2x^2 - 8$. HINT: FIRST FACTOR OUT GCF. THEN USE SEC. 5.4 METHOD: $A^2 - B^2 = (A + B)(A - B)$

36. SEC. 5.6: Solving using the principle of zero products
$(x + 2)(x + 7) = 0$.

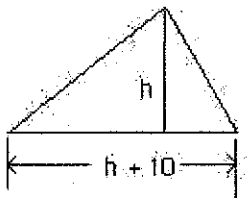
37. SEC. 5.6: SOLVE BY FIRST FACTORING THE LEFT HAND SIDE OF THE EQUATION. THEN SOLVE USING THE PRINCIPLE OF ZERO PRODUCTS:
$x^2 + 7x + 6 = 0$.

SEC. 5.7

38. (a) A number is 6 less than its square. Translate. (b) Solve the equation for x in the previous part.

EXTRA CREDIT And In-Class: #39 – 42.

39. SEC. 5.7. A triangle is 10 cm wider base-wise b than it is tall measured in h. The area is 28 cm^2. Check it out:



Translate:

40. Find the height h and the base b in the previous problem.

41. FACTOR *COMPLETELY* BY GROUPING:
$x^3 - 3x^2 + 4x - 12$.

42. Factor completely. $x^2 + 2x - 8$.

BELOW IS TAKE HOME DUE WED 7/30

43. The screen of a graphing calculator is rectangular, and has a width W that is 2 cm less than the length L. If the area of the rectangle is 24 cm^2, then find both those quantities.

44. One leg of a right triangle is 1600 ft. The hypotenuse of the triangle is 400 ft longer than the other leg x. What are the dimensions of the rectangle? What are the length and width? HINT: SOLVE FOR X USING THE PYTHAGOREAN THEOREM.

45. Factor $x^8 - 25$. HINT SEE EXAMPLE 7.

46. Factor by grouping. $x^3 + 3x^2 + 4x + 12$. Hint. Use parentheses to group the 4 terms into *two* groups. Then factor out the greatest common factor from each group. Then factor completely.

47. SOLVE BY FIRST FACTORING THE LEFT HAND SIDE OF THE EQUATION. THEN SOLVE USING THE PRINCIPLE OF ZERO PRODUCTS:
$x^2 + 2x = 0$.

48. Divide: $(25x^3 + 10x^2 - 15x) \div (5x)$

Test 3 solns

1. x^{17}

2. x^2

3. $a^{12}b^{12}$

4. a^7

5. a^6b^{10}

6. $(a^3 \cdot b^2) \cdot a^8 \cdot b^6$ (after expansion)

$= a^{11}b^8$

7. $11x - 6x^2 = -6x^2 + 11x$

8. $14x - 4x^2$

$-4x^2 + 14x$

9. $8x^7 + 6x^4 + 6x^2 + 2x + 20$

10. 1

11. $22x^2 + 10x + 1$

12. $2x^2 + 10x + 29$

13. $6a^7b^5$

14. $x^2 + 7x + 10$

15. $x^2 - 3x - 10$

16. $x^2 - 7x + 10$

17. $4m^2 - 25$

18. $x^2 - 4x + 4$

19. $x^2 + 4x + 4$

20. $22x^2y + 10xy + y$

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(20)

$$x+4 \overline{)x^2+8x-13}$$

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

$$4x-13$$

$$-(4x+16)$$

$$-29$$

(21.) a. x^6 b. x^{-5}

(22.) $2^{-3} \cdot 2^4 = 2^{-3+4} = 2^1 = \frac{1}{2^3} = \frac{1}{8}$

(23.) $\frac{4y^{10}}{x^6}$

(24.) a. 8130

b. 0.0892

c. 3.1×10^2

(25.) $6x-18$

$= 6(x-3)$

(26.) x^3+7x^2+2x

$x \cdot (x^2+7x+2)$

(27.) $8x^4-16x^2+4x \cdot 1$

$= 4x \cdot (2x^3-4x+1)$

(28.) $x^5y+x^4y^3+x^3y^3+x^2y \cdot 1$

$= x^2y \cdot (x^3y+x^2y+xy+1)$

29. $x\cdot(x+4)+2\cdot(x+4)$

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

CHECK: $x^2+2x+4x+8$
$=x^2+6x+8$

30. $(x^3+3x^2)+(5x+15)$

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

$=(x+3)\cdot(x^2+5)$

31. $x^2+7x+12$

$=(x+4)(x+3)$

32. x^2-6x+5

$=(x-1)(x-5)$

CHECK: $x^2-5x-x+5$

33. $3x^2+4x+1=$

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

34. x^2-4^2

$=(x+4)(x-4)$

35. $2(x^2-4)$

$=2(x+2)(x-2)$

36. $(x+2)(x+7)=0$

$(x+2)=0$ OR $(x+7)=0$

$\Rightarrow x=-2,-7$

37. x^2+7x+6

$=(x+1)(x+6)$

$\Rightarrow x=-1$ OR $x=-6$

(4

38. $x = x^2 - 6$

$0 = x^2 - 6 - x$

$0 = x^2 - x - 6$

$0 = (x+2)(x-3)$

$x = -2, 3$

42. $x^2 + 2x - 8$

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

39. 40. $\frac{1}{2}(h+10)h = 28$

$h^2 + 10h = 56$

$h^2 + 10h - 56 = 0$

$(h+14)(h-4) = 0$

$h = 4, b = 14$

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

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

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