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QUIZ 8

7/16/2014 Quiz 8 SU '14 MTH 65 CRN 10113 SEC. 083

Quiz 8 SU14---4.3 , 4.4, 4.5
1. SEC. 4.3: Add: $(2x^2 - 4x + 15) + (20x^2 + 14x - 14)$
2. SEC. 4.3: Subtract: $(2x^2 - 4x + 15) - (20x^2 - 14x - 14)$
3. SEC. 4.4: Multiply. $(6a^8 \cdot b^7) \cdot (3a^4 \cdot b^3)$
4. SEC. 4.4/4.5: Multiply. $(x + 7) \cdot (x + 3)$. USE FOIL.
5. SEC. 4.4/4.5: Multiply. $(x - 7) \cdot (x + 3)$. USE FOIL.
6. SEC. 4.4/4.5: Multiply. $(x - 7) \cdot (x - 3)$. USE FOIL.
7. SEC. 4.5: Multiply. $(4n + 7) \cdot (4n - 7)$

Quiz 9 SU14---4.5, 4.6, 4.7
SEC. 4.5
1. Multiply out and collect like terms . **(a) $(x + 7)\cdot(x + 7)$ (b) $(x - 8)(x - 8)$ (c) $(x - 8)(x + 8)$** **USE FOIL. *But see any patterns of interest.***
2. Multiply out and collect like terms . USE FOIL. BUT ALSO SEE *PATTERNS.* **(a) $(4n + 7)\cdot(4n - 7)$ (b) $(x + 5)(x - 5)$ (c) $(x - 4)(x + 4)$**
SEC. 4.6
3. Add. $(2x^2y - 4xy + 15y) + (20x^2y + 14xy - 14y)$
4. Subtract. $(2x^2y - 4xy + 15y) - (20x^2y - 14xy^2 - 14y)$. Be careful.
SEC. 4.7
5. Divide using long hand division : **(a) $(x^2 + 2x - 15) \div (x + 5)$ (b) $(x^2 + 8x - 15) \div (x + 4)$**
6. Divide: $(500x^2 + 25x - 15) \div (5x)$
SEC. 4.8
7. **(a) Express using positive exponents. $1/x^{-7}$** **(b) Express using negative exponents. $1/x^{7}$**
8. Simplify. Express with positive exponents in the final answer. **$5^{-8} \cdot 5^{4}$.**
9. Simplify. Express with positive exponents in the final answer. $\frac{12x^{-6}}{8y^{-10}}$
10. Convert to decimal notation. $8.13x10^{4}$. Hint: Do you move the decimal point 4 places to the right or 4 places to the left? If you can answer this question you should get the problem right.
11. Convert to decimal notation. $8.92x10^{-3}$. 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 right.
12. Convert to scientific notation. 2100 Hint. You can write 2100 as 2100. Do you move the decimal point 3 places to the right or 3 places to the left? If you can answer this question you will make a big step toward doing the problem.
13. Convert to scientific notation. 0.0814

Quiz 10 SU14 : #1- 3 ARE IN CLASS,
Sec. 5.1
1. FACTOR: $6x - 24$
2. FACTOR: $x^3 + 7x^2$ + X
3. FACTOR: $16x^4 - 24x^2$ + 8 X
TAKE HOME BELOW:
4. FACTOR: $X^5Y^5 + X^4Y^3 + X^3Y^3 - X^2Y^2$.
5. Factor. $x\cdot(x + 5) + 2\cdot(x + 5)$. Hint: What factor in parentheses ( ) is common to both terms?
6. FACTOR BY GROUPING. $x^3 + 3x^2 + 7x + 21$
Sec. 5.2
7. Factor completely. $x^2 + 9x + 20$. Hint. What two numbers multiply to 20 and add to 9?
8. Factor completely. $x^2 - 5x + 6$. Hint. What two numbers multiply to 6 and add to 5? Be careful with the signs in your final answer.
9. Factor completely. $x^2 + 2x - 8$.
10. FACTOR COMPLETELY BY GROUPING: $x^3 - 3x^2 + 4x - 12$ AND SEC 5.4 METHODS.
11. SECTION 5.3 : FACTOR: $3x^2 + 4x + 1$.
12. SECTION 5.3 : FACTOR: $5x^2 + 18x + 9$.
SEC. 5.4
13. Factor: $x^2 - 25$. Hint: $A^2 - B^2 = (A + B)\ A - B)$
14. Factor $x^4 - 16$. HINT SEE EXAMPLE 7.
SEC. 5.5 GENERAL FACTORING STRATEGIES--
15. FACTOR; $5x^2 - 125$. HINT: FIRST FACTOR OUT GCF. THEN USE SEC. 5.4 METHOD.
16. 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.
SEC. 5.6
17. Solving using the principle of zero products $(x + 2)(x + 7) = 0$.
18. SOLVE BY FIRST FACTORING THE LEFT HAND SIDE OF THE EQUATION. THEN SOLVE USING THE PRINCIPLE OF

ZERO PRODUCTS:
$x^2 + 7x + 6 = 0.$

19. SOLVE BY FIRST FACTORING THE LEFT HAND SIDE OF THE EQUATION. THEN SOLVE USING THE PRINCIPLE OF ZERO PRODUCTS:
$x^2 + 5x = 0.$

REAL QUIZ 11: FOR MANY, THESE PROBLEMS WE REVIEWED IN CLASS THU 7-24 AFTER YOU LEFT. BUT YOU STILL CAN CATCH UP --- BY JUMPING ON THEM NOW, GETTING ON THE BUS AND A LEG UP ON THOSE WHO STARTING WORKING ON THESE THURSDAY NIGHT IN CLASS.

5.7

1. A number is 6 less than its square. Translate.

2. Solve the equation for x in the previous problem.

3. 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.

4. 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.

5. Written problem. 6.1. Factor and simplify.

$$\frac{x^3-4}{x^2+5x+6}$$

6.1

6. Simplify. $75a^{50}/50a^{30}$

7. Simplify. $(x^2 - 10x + 21)/(x^2 - 11x + 28)$ BY FACTORING, CANCELLING .

6.2

8. Simplify. FACTOR AND CANCEL.

$$\frac{x^2+10x-11}{5x}\cdot\frac{x^3}{x+11}$$

9. Simplify again. FACTOR AND CANCEL AFTER YOU TAKE THE FIRST CRITICAL STEP.

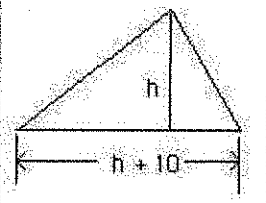
$$\frac{5x^2}{x^2+10x-11}\div\frac{x^3}{x+11}$$

EXTRA CREDIT: FROM THE MULTIPLE CHOICE "Yellow Pages' EQUIPPED WITH HINTING OPTIONS. SHOW WORK !!

6.3

10. Find the LCM of $12a^2b^7$ and $18a^5b^2$

11. SEC. 6.2. A triangle is 10 cm wider base-wise b than it is tall measured in h. The area is 8 cm². Check it out:



Translate:

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

$x^2 + 10x = 56$

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

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

$x = 4$

Quiz 8 Solutions

(1.) $(2x^2 - 4x + 15) + (20x^2 + 14x - 14)$

$= 22x^2 + 10x + 1$

(2.) $(2x^2 - 4x + 15) - (20x^2 - 14x - 14)$

$2x^2 - 4x + 15 - 20x^2 + 14x + 14$

$-18x^2 + 10x + 29$

(3.) $(6a^8 \cdot b^7) \cdot (3a^4 \cdot b^3)$

$= 18a^{12}b^{10}$

(4.) $(x+7) \cdot (x+3)$

$= x^2 + 3x + 7x + 21$

$= x^2 + 10x + 21$

(5.) $(x-7) \cdot (x+3)$

$= x^2 + 3x - 7x - 21$

$= x^2 - 4x - 21$

(6.) $(x-7) \cdot (x-3)$

$= x^2 - 3x - 7x + 21$

$= x^2 - 10x + 21$

(7.) $(4n+7)(4n-7)$

$= 4n \cdot 4n - 7 \cdot 4n + 7 \cdot 4n - 49$

$= 16n^2 - 49$

Quiz 9

1. (a) $(x+7)(x+7)$

$= x^2 + 7x + 7x + 49$

$= x^2 + 14x + 49$

(b) $(x-8)(x-8)$

$= x^2 - 16x + 64$

(c) $(x-8)(x+8)$

$= x^2 - 64$

2. (a) $(4m+7)\cdot(4m-7)$

$= (4m)^2 - 7\cdot 4m + 7\cdot 4m - 7^2$

$= 4^2 m^2 - 49$

$= 16m^2 - 49$

3. $(2x^2y - 4xy + 15y) + (20x^2y + 14xy - 14y)$

$= 22x^2y + 10xy + y$

4. $(2x^2y - 4xy + 15y) - (20x^2y - 14xy^2 - 14y)$

$= -18x^2y - 4xy + 14xy^2 + 29y$

From the top:

$(2x^2y - 4xy + 15y) - (20x^2y - 14xy^2 - 14y)$

$2x^2y - 4xy + 15y - 20x^2y + 14xy^2 + 14y$

$-18x^2y - 4xy + 29y + 14xy^2$

5. (a)

$$x+5 \overline{)\, x^2 + 2x - 15} \quad (x - 3)$$

$-(x^2 + 5x)$

$-3x - 15$

$-(-3x - 15)$

REMAINDER = 0

5(a.) check:

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

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

$= x^2 + 2x - 15$

5(b.)

$$x+4 \text{ R}(-31)$$
$$x+4 \overline{)\, x^2+8x-15}$$
$$-(x^2+4x)$$
$$4x-15$$
$$-(4x+16)$$
$$-31$$

Answer:

$x+4 \text{ R}(-31)$

OR $x+4-\frac{31}{(x+4)}$

check:

$(x+4)\left[(x+4)-\frac{31}{(x+4)}\right]$

$= x^2+8x+16-31$

$= x^2+8x-15$

7(a.) $\frac{1}{x^7} = x^{-7}$

(b.) $\frac{1}{x^{-7}} = x^7$

8. $5^{-4} \cdot 5^4 = 5^{-4+4} = 5^0 = 1$

9. $\frac{12x^{-6}}{8y^{-10}}$

$= \frac{12}{8} \cdot x^{-6} \cdot \frac{1}{y^{-10}}$

$= \frac{12}{8} \cdot \frac{1}{x^6} \cdot y^{10} = \frac{3y^{10}}{2x^6}$

10. 8.13×10^4

$= 81300$

11. 8.92×10^{-3}

$= 0.00892$

12. $210.$

$= 2.1 \times 10^3$

13. 0.0814

$= 8.14 \times 10^{-2}$

Quiz 10

1. $6x - 24 = 6(x - 4)$

2. $x^3 + 7x^2 + x \cdot 1$

GCF = x

$x^2 \cdot x + 7 \cdot x \cdot x + x \cdot 1$

$= x \cdot (x^2 + 7x + 1)$

3. $16x^4 - 24x^2 - 8x$

GCF = $8x$

$16x^4 - 24x^2 - 8x \cdot 1$

$= 8x \cdot (2x^3 - 3x - 1)$

careful now!

4. $x^5 y^5 + x^4 y^3 + x^3 y^3 - x^2 y^2 \cdot 1$

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

Q10

(5.) $x\cdot(x+5)+2\cdot(x+5)$

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

(6.) $(x^3+3x^2)+(7x+21)$

$x^2(x+3)+7(x+3)$

$\Rightarrow (x+3)\cdot(x^2+7)$

(7.) $x^2+9x+20$

$=(x+4)(x+5)$

(8.) x^2-5x+6

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

(9.) x^2+2x-8

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

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

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

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

(11.) $3x^2+4x+1$

$3\cdot 1=3,\ 3+1=4$

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

(12.) $5x^2+18x+9$

$=(5x+3)(x+3)$

$45=3\cdot 15,\ 3+15=18$

(13.) x^2-25

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

(14.) $x^4-16=(x^2)^2-4^2$

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

Quiz 10

(14) $= \boxed{(x+2)(x-2)(x^2+4)}$

(15) $5x^2 - 125$

$= 5(x^2 - 25)$

$= 5(x+5)(x-5)$

since $25 = 5^2$.

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

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

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

(17) $(x+2)(x-7) = 0$

$x = -2$ or $x = 7$

(18) $x^2 + 7x + 6 = 0$

$(x+1)(x+6) = 0$

$x+1 = 0$ OR $x+6 = 0$

$x = -1$ OR -6

(19) $x^2 + 5x = 0$

$x \cdot (x+5) = 0$

$x = 0$ or $x+5 = 0$

$x = 0$ or $x = -5$

5.

Quiz #1 Practice

(1) $x = x^2 - 6$

(2) $x = x^2 - 6$

$-x \quad -x$

$0 = x^2 - x - 6$

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

$x+2=0$ OR $x-3=0$

$x = -2$ OR $x = 3$

(3) $L \cdot (L-2) = 24$

$L^2 - 2w = 24$

$L^2 - 2w - 24 = 0$

$(L+4)(L-6)$

$L = 6, w = 4.$

(4) $(x+400)^2 = 1600^2 + x^2$

$x^2 + 800x + 160000 = 2560000 + x^2$

$800x + 160000 = 2,560,000$

-2560000

-160000

$2,400,000$

$800x = 2400000$

$x = \frac{2400000}{800}$

$x = 3000$

Quiz 11

(11.)

$\frac{1}{2}(h+10)\cdot h = 28$

$(h+10)h = 56$

$h^2 + 10h = 56$

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

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

$h = 4$

$\Rightarrow b = h + 10$

$= 14$

(1.)