

**PROBLEM SOLVING SESSION**  
**MATH 020**

Rev. Spring 2005

**WEEK X**

**Factoring:**

1.  $x^2 + 11x + 18$
2.  $x^2 - 8x + 16$
3.  $5x^2b - 7x b^3$
4.  $a^2 + a - 6$
5.  $y^2 - 3y - 28$
6.  $x^2 - 36$

7.  $9a^2x - 27a^3x^3$
8.  $1 - 16x^2$
9.  $a^2 + 6a + 9$
10.  $x^2 - 4x + 4$
11.  $9a^2 - 25$
12.  $2x^3 + 6x^2 - 14x$

**WEEK XI**

**Solve the following Quadratic Equations:**

1.  $(x + 3)(x - 5) = 0$
2.  $y(y + 5) = 0$
3.  $x^2 + 2x - 15 = 0$

4.  $x^2 - 6x + 8 = 0$
5.  $y^2 - 5y - 24 = 0$
6.  $x^2 - x - 12 = 0$

**Simplify:**

1.  $\frac{x^2 - x - 12}{x^2 + 9x + 18}$

2.  $\frac{16x^2y}{24xy^3}$

3.  $\frac{5xy - 3y}{9 - 15x}$

**Multiply or Divide:**

1.  $\frac{8x - 12}{14x + 7} \cdot \frac{42x + 21}{32x - 48}$

4.  $\frac{x^2 - 2x - 24}{x^2 - 5x - 6} \cdot \frac{x^2 + 5x + 6}{x^2 + 6x + 8}$

2.  $\frac{x^2 - 5x + 4}{x^2 - 2x + 1} \cdot \frac{x^2 - 9}{x^2 - 7x + 12}$

5.  $\frac{10x + 10}{3x - 6} \div \frac{2x + 2}{3xy - 6y}$

3.  $\frac{10x^2 - 50x}{12x + 24} \cdot \frac{2x + 4}{5x - x^2}$

6.  $\frac{x^2 - 5x - 14}{x^2 - 3x - 10} \div \frac{x^2 - 4x - 21}{x^2 - 9x + 20}$

## WEEK XII

### Find the Least Common Multiple (LCM):

1.  $(3x + 3)$  and  $(x^2 - 1)$
2.  $12a^2b$  and  $18ab^2$
3.  $(x + 1)(x + 2)$  and  $(x + 1)(x + 3)$

### Add and Subtract:

1.  $\frac{6}{ab} - \frac{2}{ab}$
2.  $\frac{2n}{3n+4} - \frac{5n-3}{3n+4}$
3.  $\frac{7}{4y} + \frac{11}{6y} - \frac{8}{3y}$
4.  $\frac{x-3}{6x} + \frac{x+4}{8x}$

### Solve:

1.  $3 + \frac{8}{n} = 5$
2.  $\frac{4}{9} = \frac{x}{27}$
3.  $\frac{16}{x-2} = \frac{8}{x}$

## WEEK XIII

### Applications of Proportions:

1. A weight of a 21 lb. stretches a spring 14 in. At the same rate, how far would a weight of 12 lb. stretch the spring?
2. A typist can type 40 words in three minutes. At this rate how long will it take the typist to complete 200 words?
3. The numerator of a fraction is 3 less than the denominator. If both are increased by 4, the new fraction is  $\frac{2}{3}$ . Find the original fraction.

### Literal Equations: Solve for indicated letter

1.  $Prt = I$  for  $r$
2.  $4x + y = 8$  for  $y$
3.  $P = C + Cr$  for  $r$
4.  $P = \frac{R-C}{n}$  for  $R$

### Simplify:

1.  $\sqrt{25}$
2.  $\sqrt{121}$
3.  $\sqrt{36}$
4.  $\sqrt{12}$
5.  $\sqrt{24}$
6.  $\sqrt{84}$
7.  $\sqrt{a^{16}}$
8.  $\sqrt{r^2s^4}$
9.  $\sqrt{9x^2}$

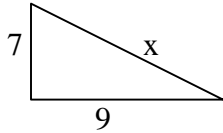
**Pythagorean Theorem:**

1. The legs of a right triangle measure 3 in. and 9 in. Find the length of the hypotenuse

2. The hypotenuse of a right triangle measures 15 cm. If one leg measures 5cm., find the length of the other leg.

3. Solve for x :

a.



b.



c.

