

TUESDAY May 1, 2012

HW# 18

Test#5 MAY 16 2012 BASED ON HW# 20

Aim: How do we simplify rational expressions by factoring them and renaming them?

Do Now: ① Simplify each expression

$$1) \frac{12 \div 2}{40 \div 2} = \frac{6 \div 2}{20 \div 2} = \frac{3}{10} \quad 2) \frac{24 \div 2}{60 \div 2} = \frac{12 \div 2}{30 \div 2} = \frac{6 \div 3}{15 \div 3} = \frac{2}{5}$$

② Factor each Expression

$$1) x^2 + 5x + 6 \\ (x+2)(x+3)$$

$$2) x^2 - 64 = (2x+8)(2x-8) \\ = 4(x^2 - 16) = 4(x+4)(x-4)$$

I- Rational Expression

i) It looks like this:  $\frac{\text{NUMERATOR}}{\text{Denominator}}$

Where either one can be a polynomial

ex)  $\frac{n}{6}, \frac{1}{2}, \frac{6}{n+1}$

When does this denominator may have a problem? When  $n = -1$

note: NO ZEROS in the denominator

ex)  $\frac{6}{n^2+1}$   $n^2+1$   
 $(-1)^2+1 = 1+1 = 2$  no problem

ask)  $n^2+1 = 0$   
 $n^2 = -1$   
 $n = \sqrt{-1}$  No Real Solution

HW #18

1 Given the expression  $\frac{3}{x^3 - 4x}$ , what are the excluded values of  $x$ ?

(1) 2 and -2                      (3) -2, 0, and 2  
 (2) 0 and 2                        (4) 0 and 4

ask:  $x^3 - 4x = 0$   
 $x(x^2 - 4) = 0$   
 $x(x-2)(x+2) = 0$   
 $x=0$  ✓       $x-2=0 \rightarrow x=2$        $x+2=0 \rightarrow x=-2$