10/31/12 – Ch 7 Review

Math 120

$(ab)^n = a^n b^n$

#6

$(-i)^2 = (-1 \cdot i)^2$

$= (-1)^2 i^2$

$= 1 \cdot (-1)$

$= \boxed{-1}$

#42

$\frac{-5}{(2-i)} = -2-i$

$(-2-i)(2-i) = \boxed{-5}$

Defn: $\frac{N}{d} = q$ because $dq = N$

$\frac{20}{4} = 5$

$4 \cdot 5 = 20$

#72

$\frac{(5-i)\cdot -i}{i \cdot -i}$

$0 + 1i$

$0 - 1i = -i$

$\frac{-5i + i^2}{-i^2}$

$\frac{-1 \cdot i^2}{(-1)(-1)}$

$\frac{-5i + (-1)}{-(-1)}$

$\frac{-5i + -1}{1} = -1 - 5i$

#36 $(-2-3i) - (-5-3i)$

$-2-3i+5+3i$

$\boxed{3}$

7.1

#84 $\dfrac{t^2-49}{t^2+4t-21} \cdot \dfrac{t^2+8t+15}{t^2-2t-35}$

$\dfrac{(t^2-49)(t^2+8t+15)}{(t^2+4t-21)(t^2-2t-35)}$ ← Richfield / ← Ephraim

$\dfrac{(t-7)(t+7)(t+3)(t+5)}{(t-3)(t+7)(t-7)(t+5)}$

$\dfrac{t+3}{t-3}$

#70 $\dfrac{7}{t-2} - \dfrac{6}{t^2-2t} - \dfrac{3}{t}$

$\dfrac{t\cdot 7}{t(t-2)} - \dfrac{6}{t(t-2)} - \dfrac{3(t-2)}{t(t-2)}$ LCD: $t(t-2)$

$\dfrac{7t}{t(t-2)} - \dfrac{6}{t(t-2)} - \dfrac{3(t-2)}{t(t-2)} = \dfrac{7t-6-3(t-2)}{t(t-2)}$

$$\frac{7}{t-2} - \frac{6}{t(t-2)} = \frac{3}{t} \qquad \text{LCD: } t(t-2)$$

$$7t - 6 = 3(t-2)$$

#70 cont.

$$\frac{7t - 6 - 3t + 6}{t(t-2)}$$

$$\frac{4t}{t(t-2)} = \frac{4}{t-2}$$

#26

$$\frac{\frac{4p}{4} - \frac{p+2}{4}}{\frac{3p}{4p} - \frac{5 \cdot 2}{22p}}$$

flip & multiply

Requirement

Single fraction top

Single fraction Bottom

$$\frac{\frac{4p - p - 2}{4}}{\frac{3p-10}{4p}}$$

$$\frac{\frac{3p-2}{4}}{\frac{3p-10}{4p}}$$

flip & multiply

$$\frac{(3p-2)}{4} \cdot \frac{4p}{(3p-10)}$$

$$\boxed{\frac{p(3p-2)}{3p-10}}$$

37 $\frac{1}{x-2} + \frac{1}{4} = \frac{1}{4(x^2-4)}$

$\frac{4(x+2)(x-2)}{x-2} + \frac{4(x+2)(x-2)}{4} = \frac{4(x+2)(x-2)}{4(x+2)(x-2)}$

LCD: $4(x+2)(x-2)$

D: $x \neq -2, 2$

$4(x+2) + (x+2)(x-2) = 1$

$4x+8 + x^2-4 = 1$

$-1 \quad -1$

$x^2+4x+4-1=0$

$x^2+4x+3=0$

$(x+3)(x+1)=0$

$x+3=0 \qquad x+1=0$

$-3 \quad -3 \qquad -1 \quad -1$

$x=-3 \qquad x=-1$

$\boxed{x=-3,-1}$

Work/Rate Problems

$\frac{1}{\text{time alone}}(\text{time together}) + \frac{1}{\text{time alone}}(\text{time together}) = 1$ job well done :)

$\frac{1}{20}(12) + \frac{1}{x}(12) = 1$

Jerry → 20
together → 12
Kuba → ~~30~~

LCD: $20x$

$20x \cdot \frac{12}{20} + 20x \cdot \frac{12}{x} = 1 \cdot 20x$

$12x + 240 = 20x$

$-12x \quad -12x$

$\frac{240}{8} = \frac{8x}{8}$

$30 \text{ hrs} = x$