Questions?

§ 6.6

Solve $f = \frac{f_1 - f_2}{f_1 f_2}$ for f_2

LCD = $f_1 f_2$

$f \cdot f_1 f_2 = \frac{f_1 - f_2}{f_1 f_2} \cdot \frac{f_1 f_2}{1}$

$f f_1 f_2 = f_1 - f_2$

$+f_2 = +f_2$

Add to get all f_2's on left

$f f_1 f_2 + f_2 = f_1$

$f f_1 f_2 + f_2$

$= (f f_1 + 1) f_2$

$f_2(f f_1 + 1) = f_1$ factor out f_2

$\frac{f_2(f f_1 + 1)}{(f f_1 + 1)} = \frac{f_1}{(f f_1 + 1)}$ Divide by coefficient of f_2

$f_2 = \frac{f_1}{f f_1 + 1}$

Factor out f_2:

$f f_1 f_2 + f_2$

$= f_2 \left(\frac{f f_1 f_2}{f_2} + \frac{f_2}{f_2} \right)$

$= f_2 \left(\frac{f f_1 \cancel{f_2}}{\cancel{f_2}} + \frac{\cancel{f_2}}{\cancel{f_2}} \right)$

$= f_2 (f f_1 + 1)$

Solve $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$ for R_2

LCD $= RR_1R_2$

$$\frac{1}{R} \cdot \frac{RR_1R_2}{1} = \frac{1}{R_1} \cdot \frac{RR_1R_2}{1} + \frac{1}{R_2} \cdot \frac{RR_1R_2}{1}$$

$$\frac{1}{R} \cdot \frac{RR_1R_2}{1} = \frac{1}{R_1} \cdot \frac{RR_1R_2}{1} + \frac{1}{R_2} \cdot \frac{RR_1R_2}{1}$$

$$R_1R_2 = RR_2 + RR_1$$

$$-RR_2 = -RR_2$$

$$R_1R_2 - RR_2 = RR_1$$

$$R_2\left(\frac{R_1R_2}{R_2} - \frac{RR_2}{R_2}\right) = RR_1$$

$$R_2(R_1 - R) = RR_1$$

$$\frac{R_2(R_1 - R)}{R_1 - R} = \frac{RR_1}{R_1 - R}$$

$$\boxed{R_2 = \frac{RR_1}{R_1 - R}}$$

Amanda can finish in 12 hrs. Starts @ 6am
Steve .. .. .. 15 hrs 9am
when do they finish?

Let x = How long Amanda works (in hrs)
y = ... Steve .. .. ..
Since Steve starts 3 hrs late, $y = x-3$

$\frac{1}{12}\frac{\text{job}}{1\text{ hr}} \times \text{hours} + \frac{1}{15}(x-3) = 1 \text{ job}$

$\frac{1}{12}x$ = How much of the job she did.

$\frac{1}{15}(x-3)$ = My contribution

Steve starts 3hrs later.

$\frac{1}{12}x + \frac{1}{15}(x-3) = 1$

$2\overline{)12}\quad 3\overline{)15}$
$2\overline{)6}\quad 5$
3

LCD = 2·2·3·5

$\frac{x}{12} + \frac{x-3}{15} = 1$

$\frac{x}{2\cdot2\cdot3}\cdot\frac{2\cdot2\cdot3\cdot5}{1} + \frac{x-3}{3\cdot5}\cdot\frac{2\cdot2\cdot3\cdot5}{1} = 1\cdot2\cdot2\cdot3\cdot5 = 60$

$\frac{x}{2\cdot2\cdot3}\cdot\frac{2\cdot2\cdot3\cdot5}{1} + \frac{x-3}{3\cdot5}\cdot\frac{2\cdot2\cdot3\cdot5}{1} = 1\cdot2\cdot2\cdot3\cdot5 = 60$

$(x)(5) + (x-3)(2\cdot2) = 60$

$5x + 4(x-3) = 60$

$5x + 4x - 12 = 60$

$9x - 12 = 60$

$+12 = +12$

$9x = 72$

$x = 8$

Starts @ 6am
8 hrs later, it's
2pm

(33) Current is 5mph. Takes boat same time to travel downstream 20 miles as it takes to travel upstream 10 miles. How fast is boat?

Let x = How fast the boat is (in mph)

$D = rt$, $r = \frac{D}{t}$, $t = \frac{D}{r}$

	up	down
D	10 mi	20mi
r	$x-5$	$x+5$
t	t	t

$$t = t$$

$$\frac{10}{x-5} = \frac{20}{x+5}$$

Working at Cross-Purposes.

I can build it in 5 hrs

You can tear it down in 3 hrs.

If it's built, already & you start tearing it down & I keep trying to fix it, how long 'til it's ~~totally~~ destroyed?

$\frac{1}{3}x - \frac{1}{5}x = 1$

$\frac{1}{3} - \frac{1}{5} = \frac{1}{x}$ Book way

x = time to tear it down (hrs)

§6.6 #s 2, 5, 13, 25, 27, 32, 33, 34, 39, 44, 45

6.5 Friday.

Questions?

Due Monday

Oct 27-9:54 AM