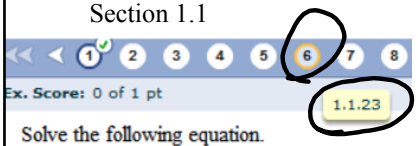
Some 5' 1.1 & 1.2 problems missing from the notes.

Primes!
2, 3, 5, 7, 11, 13, 17, 19, 23

Section 1.1



I got an ugly answer and didn't perform the check.

Solve the following equation.

$$\frac{9x}{10} - 4 = 1 - \frac{19x}{20}$$

LCD

$10 = 2 \cdot 5$

$20 = 2 \cdot 2 \cdot 5$

$LCD = 2 \cdot 2 \cdot 5$

2|10
5

2|20
2|10
5

$+4 = +4$

$$\frac{9x}{10} = 5 - \frac{19x}{20}$$

$$\left(\frac{9x}{2 \cdot 5}\right)\left(\frac{2}{2}\right) = \frac{5}{1} \cdot \frac{2 \cdot 2 \cdot 5}{2 \cdot 2 \cdot 5} - \frac{19x}{LCD}$$

$$\frac{18x}{LCD} = \frac{100 - 19x}{LCD}$$

Extra step that you'll NEED in the sequel.

$18x = 100 - 19x$

$+19x = +19x$

$37x = 100$

$$x = \frac{100}{37}$$

Setting up a STYLE that's better for the sequel.

Check $\frac{9x}{10} - 4 = 1 - \frac{19x}{20}$

$$\frac{9\left(\frac{100}{37}\right)}{10} - 4 = 1 - \frac{19\left(\frac{100}{37}\right)}{20}$$

$$\frac{\frac{900}{37}}{\frac{10}{1}} = 5 - \frac{\frac{1900}{37}}{\frac{20}{1}}$$

It checks, but my check sucked.

$$\frac{900}{37} \cdot \frac{1}{10} = 5 - \frac{1900}{37} \cdot \frac{1}{20}$$

$$\frac{90}{37} = \frac{(5)(37)}{37} - \frac{190}{37}$$

$$\frac{90}{37} \stackrel{?}{=} \frac{185}{37} - \frac{190}{37}$$ No!?

1 2 3 4 5 6 7 8 9 10

Ex. Score: 0 of 1 pt 1.2.13 H

Solve the formula for the F_1.

$$\frac{1}{F}=\frac{1}{F_1}+\frac{1}{F_2}+\frac{1}{F_3}$$

LCD = $FF_1F_2F_3$

$$\left(\frac{1}{F}\right)\left(\frac{F_1F_2F_3}{F_1F_2F_3}\right)=\left(\frac{1}{F_1}\right)\left(\frac{FF_2F_3}{FF_2F_3}\right)+\left(\frac{1}{F_2}\right)\left(\frac{FF_1F_3}{FF_1F_3}\right)+\left(\frac{1}{F_3}\right)\left(\frac{FF_1F_2}{FF_1F_2}\right)$$

$$\frac{F_1F_2F_3}{LCD}=\frac{FF_2F_3+FF_1F_3+FF_1F_2}{LCD}$$

$$F_1F_2F_3=FF_2F_3+FF_1F_3+FF_1F_2$$

$$F_1F_2F_3-FF_1F_2-FF_1F_3=FF_2F_3$$

$$F_1\left(\frac{F_1F_2F_3}{F_1}-\frac{FF_1F_2}{F_1}-\frac{FF_1F_3}{F_1}\right)$$

$$\frac{F_1(F_2F_3-FF_2-FF_3)}{F_2F_3-FF_2-FF_3}=\frac{FF_2F_3}{F_2F_3-FF_2-FF_3}$$

$$F_1=\frac{FF_2F_3}{F_2F_3-FF_2-FF_3}$$

1 2 3 4 5 6 7 8 9 10

Ex. Score: 0 of 1 pt 1.2.39 HW Score: 0% (0 of 17

Tara paid one-half of her game-show winnings to the government for taxes. She invested one-third of her winnings in Jeff's copy shop at 20% interest and one-sixth of her winnings in Kaiser's German Bakery at 10% interest. If she earned a total of $2,500 on the investments in one year, then how much did she win on the game show?

Lexicon

Let x = the amt. she won (in $)

Question Context.

She won. $\frac{1}{2}$ went to U.S.

She invested { $\frac{1}{3}$ .. .. Jeff's @ 20% apr; $\frac{1}{6}$ .. .. Kaiser's @ 10% apr

She earned $2500 on her investments

Earnings $(.2)\left(\frac{1}{3}x\right)+(.1)\left(\frac{1}{6}x\right)=2500$

x10 : $\frac{2}{3}x+\frac{1}{6}x=25000$

$\frac{5}{6}x=25000$

$x=(25000)\left(\frac{6}{5}\right)=30,000$

$x=30,000$

Book version uses 12% & 14%
$\frac{1}{6}$ $\frac{1}{3}$

$(.12)(\frac{1}{6}x) + (.14)(\frac{1}{3}x) = 4000$

$\times 100$ $\frac{12}{6}x + \frac{14}{3}x = 40{,}000$

$2x + \frac{14}{3}x = 400{,}000$ LCD = 3

$(2x)(\frac{3}{3}) + \frac{14x}{3} = (\frac{400000}{1})(\frac{3}{3})$

$\frac{6x + 14x}{3} = \frac{1{,}200{,}000}{3}$

$20x = \frac{1200000}{3}$

$x = \frac{40000}{3} = 20{,}000 = x$

1 2 3 4 5 6 7 8 9 10

Ex. Score: 0 of 1 pt **HW Score:** 0% (0 of 17 pts

1.2.47

Bobby and Rick are in a 10-lap race on a one-mile oval track. Bobby, averaging 90 mph, has completed two laps just as Rick is getting his car onto the track. What speed does Rick have to average to be even with Bobby at the end of the tenth lap?

11 12 13 14 15 16 17

Ex. Score: 0 1.2.49 HW Score: 0% (0 of 17 pts)

Fritz normally commutes at an average speed of 48 miles per hour, but this morning's heavy traffic held him to only 40 miles per hour. He must determine whether he can drive home fast enough this evening in order to maintain his usual round-trip average speed.

In order to maintain his usual average round-trip speed, Fritz will have to drive home at [ ] miles per hour.