C#

7-31-14

sec 6.5

ex 1 → 5

2 → 5, 7, 9, 11

3 → " "" "

4 → 17, 23

(5.)

$$\frac{1+\frac{1}{4}}{2+\frac{3}{4}}$$

subfraction

METHOD 2

LCD = 4

of 1, 4, 1, 4

$$\frac{\left[\frac{1}{1}+\frac{1}{4}\right]\cdot 4}{\left[\frac{2}{1}+\frac{3}{4}\right]\cdot 4}=\frac{4+1}{8+3}=\boxed{\frac{5}{11}}$$

7-31

6.5

sec 6.5 METHOD 1

(2

5.

$$\frac{1+\frac{1}{4}}{2+\frac{3}{4}} = \frac{\frac{1}{1}+\frac{1}{4}}{\frac{2}{1}+\frac{3}{4}} = \frac{\frac{4}{4}+\frac{1}{4}}{\frac{8}{4}+\frac{3}{4}}$$

$$= \frac{\frac{5}{4}}{\frac{11}{4}}$$

$$= \frac{5}{\cancel{4}} \cdot \frac{\cancel{4}}{11} = \frac{5}{11}$$

7.

$$\frac{\frac{1}{2}+\frac{1}{3}}{\frac{1}{4}-\frac{1}{6}}$$ METHOD 1

$$\frac{\frac{3}{6}+\frac{2}{6}}{\frac{3}{12}-\frac{2}{12}} = \frac{\frac{5}{6}}{\frac{1}{12}}$$

$$= \frac{5}{6} \cdot \frac{12}{1} = \frac{60}{6} = 10$$

METHOD 2

3

1.

$$12 \cdot \left[\frac{1}{2} + \frac{1}{3}\right]$$

$$12 \cdot \left[\frac{1}{4} - \frac{1}{6}\right]$$

LCD of 2, 3, 4, 6 $= 12$

$$\frac{6 + 4}{3 - 2} = \frac{10}{1} = 10$$

9.

$$\frac{\frac{x}{4} + x}{\frac{4}{x} + x} = \frac{\frac{x}{4} + \frac{x}{1}}{\frac{4}{x} + \frac{x}{1}}$$

METHOD 1

LCD = 4

LCD = x

$$\frac{\frac{x}{4} \cdot \frac{1}{1} + \frac{x}{1} \cdot \frac{4}{4}}{\frac{4}{x} \cdot \frac{1}{1} + \frac{x}{1} \cdot \frac{x}{x}} = \frac{\frac{x + 4x}{4}}{\frac{4 + x^2}{x}}$$

(9.)

$$\frac{(x+4x)}{4} \cdot \frac{x}{(4+x^2)} = \frac{(5x)\cdot x}{4(4+x^2)}$$

PRIME

$$= \frac{5x^2}{4(4+x^2)}$$

METHOD 2 :

$$\frac{4x\cdot\left[\frac{x}{4}+\frac{x}{1}\right]}{4x\cdot\left[\frac{4}{x}+\frac{x}{1}\right]}$$

LCD = 4, 1, x, 1

= 4x

= 4·1·x·1

= 4x

$$\frac{x^2+4x^2}{16+4x^2} = \frac{5x^2}{16+4x^2}$$

same!

(4

(11.)

$$\frac{\frac{10}{t}}{\frac{2}{t^2}-\frac{5}{t}} = \frac{\left(\frac{10}{t}\right)}{\left(\frac{2}{t^2}-\frac{5}{t}\right)}$$

METHOD2: LCD of t, t^2, t

$= t^2.$

$$\frac{t^2 \cdot \left(\frac{10}{t}\right)}{t^2 \cdot \left(\frac{2}{t^2}-\frac{5}{t}\right)} = \frac{t^2 \cdot \frac{10}{t}}{t^2 \cdot \frac{2}{t^2} - t^2 \cdot \frac{5}{t}}$$

$\rightarrow 10t$

$$= \frac{10t}{2-5\cdot t}$$

method 2:

17.

$$\frac{\left[\frac{1}{s}-\frac{1}{5}\right]\cdot(5\cancel{s})}{\left[\frac{(s-5)}{\cancel{s}}\right]\cdot(5\cancel{s})}$$

LCD of $s, 5, s$

$= 5\cdot s$

$7 = 7$

$5 = 5$

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

$$= \frac{5-s}{5(s-5)} = \frac{(5-s)}{5\cdot(s-5)}$$

$$= \frac{\cancel{-(s-5)}}{5\cdot\cancel{(s-5)}}$$

$$= \boxed{-\frac{1}{5}}$$

Appendix:

$(a-b) = -(b-a)$

$$\frac{(a-b)}{(b-a)} = -1 = \frac{(b-a)}{(a-b)}$$

(7

23.

$$\frac{c^3 \cdot \left[\frac{7}{c^2} + \frac{4}{c}\right]}{c^3 \cdot \left[\frac{6}{c} - \frac{3}{c^3}\right]}$$

LCD of c^2, c, c, c^3
$= c^3$

$$= \frac{7 \cdot c + 4 \cdot c^2}{6c^2 - 3}$$

C8

6-6

ex 1 $\longrightarrow$ 5.

2 $\longrightarrow$ 17, 21, 23, 35

5.

$$\frac{3}{5} - \frac{2}{3} = \frac{x}{6} \qquad -\frac{2}{5}$$

CHECKS.

LCD = 30

$$30\left(\frac{3}{5} - \frac{2}{3}\right) = 30 \cdot \frac{x}{6}$$

$$18 - 20 = 5x$$

$$\rightarrow -\frac{2}{5} = x$$

sec 6.6

9

17.

$$\frac{5}{3t} + \frac{3}{t} = \frac{1}{1}$$

$\frac{14}{3}$ does check

Lcd of $3t, t, 1 = 3t$

$$3t\left(\frac{5}{3t} + \frac{3}{t}\right) = 3t \cdot \frac{1}{1}$$

$$5 + 9 = 3t$$

$$14 = 3t$$

$$\frac{14}{3} = t$$

(10)

21. $x + \frac{12}{x} = -7$

$\frac{x}{1} + \frac{12}{x} = -\frac{7}{1}$

LCD of 1, x, 1 = x
= x·1·1
= 1·x·1
= 1·1·x
= x

$x \cdot \left(\frac{x}{1} + \frac{12}{x}\right) = x \cdot \left(-\frac{7}{1}\right)$

$$x^2 + 12 = -7x$$
$$+7x \qquad +7x$$

$$x^2 + 7x + 12 = 0$$

Sec. 6.6

cll

$(x+4)(x+3) = 0$

ft

$(x+4) = 0$ OR $(x+3) = 0$

$x+4 = 0$ OR $x+3=0$

$-4 \quad -4 \qquad\quad -3 \quad -3$

$x = -4$ OR $x = -3$

23

$$\frac{3}{(x-4)} = \frac{5}{(x+1)}$$

METHOD A: CROSS-multiply

method B: LCD

12

6.6

A) $3 \cdot (x+1) = 5 \cdot (x-4)$

$3x + 3 = 5x - 20$
$-3x \quad -3x$

$3 = 2x - 20$
$+20 \quad +20$

$23 = 2x$

$\frac{23}{2} = x$

23.

Sec. 6.6

$$\frac{3}{(x-4)} = \frac{5}{(x+1)}$$

(13

$$LCD = (x-4)\cdot(x+1)$$

$$\cancel{(x-4)}\cdot(x+1)\cdot\frac{3}{\cancel{(x-4)}} = (x-4)\cancel{(x+1)}\cdot\frac{5}{\cancel{(x+1)}}$$

$$3(x+1) = 5\cdot(x-4)$$

$$3x+3 = 5x-20$$

$$-3x \qquad -3x$$

$$3 = 2x-20$$

$$23 = 2x$$

$$11.5 = \frac{23}{2} = x$$

6.6

14

35.

$$\frac{5}{t-2} + \frac{3t}{t-2} = \frac{4}{t^2-4t+4}$$

$$\frac{5}{(t-2)} + \frac{3t}{(t-2)} = \frac{4}{(t-2)(t-2)}$$

LCD of $(t-2)(t-2)$

$$(t-2)(t-2)\left[\frac{5}{(t-2)} + \frac{3t}{(t-2)}\right] = (t-2)(t-2)\cdot\frac{4}{(t-2)(t-2)}$$

$$5(t-2) + 3t\cdot(t-2) = 4$$

$$5t - 10 + 3t^2 - 6t = 4$$

$$3t^2 - t - 10 = 4 \Rightarrow 3t^2 - t - 14 = 0$$

$$3t^2 - t - 14 = 0 \to \overbrace{(3t-7)(t+2)}^{6.6} = 0$$

$$\to 3t - 7 = 0 \text{ OR } t + 2 = 0.$$

P 409 BOX

$$t = \tfrac{7}{3}, -2.$$

6.7

EX1

$\to$ 3.

OLIVER rate $\dfrac{1 \text{ house}}{75 h} = \dfrac{1}{75} \dfrac{\text{house}}{h}$

Pat rate $\dfrac{1 \text{ house}}{100 h} = \dfrac{1}{100} \dfrac{\text{house}}{h}$

WORK TOGETHER!

TOTAL Rate $= \dfrac{1}{75} \dfrac{\text{house}}{h} + \dfrac{1}{100} \dfrac{\text{house}}{h}$

total rate $\cdot t$ = 1 house

$$\left(\frac{1}{75} + \frac{1}{100}\right) t = 1$$

6.7

$$\left(\frac{1}{75} + \frac{1}{100}\right) \cdot t = \frac{1}{1}$$

C14

LCD = 300

of 75, 100, 1

$$300 \cdot \left(\frac{1}{75} + \frac{1}{100}\right) \cdot t = 300 \cdot \frac{1}{1}$$

$$(4 + 3) \cdot t = 300$$

$$7t = 300$$

$$t = \frac{300}{7} = 42.8$$

$$\begin{array}{r} 42.8 \\ 7\overline{)300.0} \\ -280 \\ \hline 20 \\ -14 \\ \hline 60 \end{array}$$

$\approx$ 42.8 h