S6.6 #s 2,5,13, 25,27, 32,33, 34, 39, 44, 45

S6.5 #s

6.4 #5

$$\frac{4x^2y^2 + 6xy^2 - 4y^2}{2x^2y} = \frac{4x^2y^2}{2x^2y} + \frac{6xy^2}{2x^2y} - \frac{4y^2}{2x^2y}$$

$$= 2x^{2-2}y^{2-1} + 3x^{1-2}y^{2-1} - 2x^{-2}y^{2-1}$$

$$= 2y + 3x^{-1}y^{1} - 2x^{-2}y^{1}$$

$$= 2y + \frac{3y}{x} - \frac{2y}{x^2}$$ is book answer.

5.6.5 # 16

$$\frac{4x^2-24x}{3x^2-x-2}+\frac{3}{3x+2}=\frac{-4}{x-1}$$

LCD $= (3x+2)(x-1)$

$(3x+2)(x-1)$
$= 3x^2-3x+2x-2$
$= 3x^2-x-2$ NICE

DOMAIN $= \{x \mid x \neq 1 \text{ and } x \neq -\frac{2}{3}\}$

$3x+2=0 \rightarrow 3x=-2 \rightarrow x=-\frac{2}{3}$

$$\frac{4x^2-24x}{(3x+2)(x-1)}\cdot\frac{(3x+2)(x-1)}{1}+\frac{3}{3x+2}\cdot\frac{(3x+2)(x-1)}{1}=\frac{-4}{x-1}\cdot\frac{(3x+2)(x-1)}{1}$$

$$4x^2-24x+3(x-1)=-4(3x+2)$$

$$4x^2-24x+3x-3=-12x-8$$

$$4x^2-21x-3=-12x-8$$

$$+12x+8 \quad +12x+8$$

$$4x^2-9x+5=0$$

Factors of $(4)(5)=20$ that add up to -9

$(-4)(-5)=20$

$-4-5=-9$

$4x^2-4x-5x+5$

$4x(x-1)-5(x-1)$

$(x-1)(4x-5)$

$4x^2-5x-4x+5=0$

$x(4x-5)-1(4x-5)=0$

$(4x-5)(x-1)=0$

$4x-5=0$ or $x-1=0$

$4x=5$ $\quad x=1$

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

$x \in \{\frac{5}{4}, 1\}$ OR SO it seems...

$x=1 \notin D$

Final Ans: $x \in \{\frac{5}{4}\}$

Be aware of this in # 15.

$x=1$ is not in the domain of the problem.

5.6 Applications.
Shared work
Working at cross-purposes
Distance, Rate, Time

Amanda can do the job in 12 hrs, starts @ 6am
Steve .. .. 15 .., starts @ 9am
when is the job done?
Let x = the time Amanda spends on job (hrs)
y = ... Steve .. ..

$y = x-3$

$\left(\frac{1}{12}\frac{job}{hr}\right)(x\ hrs) + \left(\frac{1}{15}\frac{job}{hr}\right)(x-3)\ hrs = 1\ job$

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

$12 = 2\cdot 2\cdot 3$, $15 = 3\cdot 5$, LCD $= 2\cdot 2\cdot 3\cdot 5$

$\frac{1x}{2\cdot 2\cdot 3}\cdot\frac{2\cdot 2\cdot 3\cdot 5}{1} + \frac{x-3}{3\cdot 5}\cdot\frac{2\cdot 2\cdot 3\cdot 5}{1} = 1\cdot 2\cdot 2\cdot 3\cdot 5$

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

$5x + 4x - 12 = 60$

$9x - 12 = 60$

$9x = 72$

$x = 8$

x = 8; Amanda starts @ 6am. Finishes @ 2pm.

34 Speed of boat in still water is 24 mph. Boat travels 54 miles upstream in the same time it takes to travel (90 miles) downstream Find speed of current. Shawn

$D = rt$

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

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

x = speed of current (mph)

	with current	against current
Dist.	90	54
Rate	$x+24$	$24-x$
Time	t	t

$t = t$

$\frac{D}{r} = \frac{D}{r}$

$\frac{90}{x+24} = \frac{54}{24-x}$

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(33)

	with	against
D	20	10
r	$x+5$	$x-5$
t	t	t

Let x = speed of boat in still water. (in mph)

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

Ask mama about #32