Pg 58 #1-6 (eoo), pg 60 #11.

Note: Beginning of exercise states we are to state restrictions.

#1a) $\frac{2}{y} + \frac{4}{y} - \frac{5}{y}$

$= \frac{2+4-5}{y}$

$= \frac{1}{y}, y \neq 0$

c) $\frac{4}{x+3} + \frac{5}{x+3}$

$= \frac{9}{x+3}, x \neq -3$

2a) $\frac{x+7}{2} + \frac{x+4}{2}$

$= \frac{2x+11}{2}$, no restrictions ($x \in R$).

c) $\frac{3a-1}{a} - \frac{4a+2}{a}$

$= \frac{3a-1-(4a+2)}{a}$

$= \frac{3a-1-4a-2}{a}$

common error ... must distribute the negative sign.

$= \frac{-a-3}{a}, a \neq 0$

e) $\frac{x^2+4}{x+1} + \frac{2x^2}{x+1}$

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

g) $\frac{5z}{2z-1} - \frac{z-3}{2z-1}$

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

(*) distribute negative sign.

$= \frac{4z+3}{2z-1}, z \neq \frac{1}{2}$

2i) $\dfrac{4x+1}{x^2+5x+6} + \dfrac{3x+2}{x^2+5x+6}$

$= \dfrac{7x+3}{x^2+5x+6}$

$= \dfrac{7x+3}{(x+2)(x+3)}$, $x \neq -2, -3$.

⊛ need to factor denominator to determine restrictions

⊛ Can leave answer with denominator factored or expanded.

3a) LCM - least or lowest Common Multiple (just like finding lowest common denominator LCD).

4, 5, 6 LCM is 60

c) 8, 10, 12

2^3, 2×5, $2^2\times3$ LCM is $2^3\times5\times3$ $= 120$

4a) $\dfrac{2x}{2} + \dfrac{x}{3}$ LCM is 6

$= \dfrac{3(2x)+2(x)}{6}$

$= \dfrac{6x+2x}{6}$

$= \dfrac{8x}{6}$

$= \dfrac{4x}{3}$

could reduce first

$\dfrac{2x}{2} + \dfrac{x}{3}$

$= \dfrac{x}{1} + \dfrac{x}{3}$ then LCD is 3

$= \dfrac{3x+x}{3}$

$= \dfrac{4x}{3}$.

c) $\dfrac{x}{5} - \dfrac{y}{2} + \dfrac{7}{10}$ LCD is 10

$= \dfrac{2x-5y+7}{10}$

5a) $\frac{2m+3}{2} + \frac{3m+4}{7}$ LCD is 14

$= \frac{7(2m+3)+2(3m+4)}{14}$

$= \frac{14m+21+6m+8}{14}$

$= \frac{20m+29}{14}$

c) $\frac{y-5}{6} - \frac{2y-3}{4}$ LCD is 12.

$= \frac{2(y-5)-3(2y-3)}{12}$

$= \frac{2y-10-6y+9}{12}$

$= \frac{-4y-1}{12}$

e) $\frac{4t-1}{6} + \frac{3t+2}{2} - \frac{2t+1}{3}$

LCD 6

$= \frac{4t-1+3(3t+2)-2(2t+1)}{6}$

$= \frac{4t-1+9t+6-4t-2}{6}$

$= \frac{9t+3}{6}$

$= \frac{3t+1}{2}$

g) $\frac{5x-1}{5} + 1 - \frac{4x-3}{6}$

LCD is 60

$= \frac{6(5x-1)+30-5(4x-3)}{30}$

$= \frac{30x-6+30-20x+15}{30}$

$= \frac{10x+39}{30}$

6a) $\frac{3}{2-x} + \frac{2}{x-2}$

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

$= \frac{-1}{x-2}, x \neq 2$

c) $\frac{a-2}{2a-3} + \frac{a+3}{3-2a}$

$= \frac{a-2}{2a-3} + \frac{-(a+3)}{2a-3}$

$= \frac{a-2-a-3}{2a-3}$

$= \frac{-5}{2a-3}, a \neq \frac{3}{2}$

Pg 59 #6e, Pg 60 #11

6e) $\frac{5x-5}{x^2-9} - \frac{3x+1}{9-x^2}$

$= \frac{5x-5+(3x+1)}{x^2-9}$

$= \frac{8x-4}{x^2-9}, x \neq \pm 3$

Pg 60 #11.

a) $A = \pi r^2, r = \frac{d}{2}$

$= \pi\left(\frac{d}{2}\right)^2$

$= \frac{\pi d^2}{4}$

b) $A = \pi r^2, r = \frac{d+1}{2}$

$= \pi\left(\frac{d+1}{2}\right)^2$

$= \frac{\pi(d+1)^2}{4}$

c) $A_{shaded} = A_{large} - A_{small}$

$= \frac{(d+1)^2\pi}{4} - \frac{\pi d^2}{4}$

$= \frac{(d^2+2d+1)\pi - d^2\pi}{4}$

$= \frac{2d\pi + \pi}{4}$

or $\frac{(2d+1)\pi}{4}$ either is fine.

d) $A = \frac{(2d+1)\pi}{4}, d = 10cm$

$A = \frac{21\pi}{4}$

$\doteq 16.5$

$\therefore$ the shaded region is $16.5 cm^2$