

1) a) $\frac{4}{8} = \underline{\underline{\frac{1}{2}}}$

o) $\frac{6}{15} = \underline{\underline{\frac{2}{5}}}$

b) $\frac{3}{15} = \underline{\underline{\frac{1}{5}}}$

p) $\frac{100}{500} = \underline{\underline{\frac{1}{5}}}$

c) $\frac{2}{6} = \underline{\underline{\frac{1}{3}}}$

q) $\frac{4}{100} = \underline{\underline{\frac{1}{25}}}$

d) $\frac{10}{15} = \underline{\underline{\frac{2}{3}}}$

r) $\frac{25}{100} = \underline{\underline{\frac{1}{4}}}$

e) $\frac{12}{14} = \underline{\underline{\frac{6}{7}}}$

s) $\frac{9}{12} = \underline{\underline{\frac{3}{4}}}$

f) $\frac{6}{18} = \underline{\underline{\frac{1}{3}}}$

t) $\frac{12}{42} = \underline{\underline{\frac{2}{7}}}$

g) $\frac{25}{40} = \underline{\underline{\frac{5}{8}}}$

u) $\frac{35}{55} = \underline{\underline{\frac{7}{11}}}$

h) $\frac{3}{12} = \underline{\underline{\frac{1}{4}}}$

v) $\frac{8}{36} = \underline{\underline{\frac{2}{9}}}$

i) $\frac{12}{54} = \underline{\underline{\frac{2}{9}}}$

w) $\frac{12}{33} = \underline{\underline{\frac{4}{11}}}$

j) $\frac{6}{9} = \underline{\underline{\frac{2}{3}}}$

x) $\frac{14}{21} = \underline{\underline{\frac{2}{3}}}$

k) $\frac{16}{40} = \underline{\underline{\frac{2}{5}}}$

y) $\frac{6}{21} = \underline{\underline{\frac{2}{7}}}$

l) $\frac{10}{1000} = \underline{\underline{\frac{1}{100}}}$

m) $\frac{10}{25} = \underline{\underline{\frac{2}{5}}}$

n) $\frac{2}{28} = \underline{\underline{\frac{1}{14}}}$

25p

$$2) \quad a) \quad \frac{16}{5} = \underline{\underline{3\frac{1}{5}}}$$

$$b) \quad \frac{29}{6} = \underline{\underline{4\frac{5}{6}}}$$

$$c) \quad \frac{9}{2} = \underline{\underline{4\frac{1}{2}}}$$

$$d) \quad \frac{26}{3} = \underline{\underline{8\frac{2}{3}}}$$

$$e) \quad \frac{31}{9} = \underline{\underline{3\frac{4}{9}}}$$

$$f) \quad \frac{23}{6} = \underline{\underline{3\frac{5}{6}}}$$

$$g) \quad \frac{13}{4} = \underline{\underline{3\frac{1}{4}}}$$

$$h) \quad \frac{23}{3} = \underline{\underline{7\frac{2}{3}}}$$

$$i) \quad \frac{47}{10} = \underline{\underline{4\frac{7}{10}}}$$

$$j) \quad \frac{19}{8} = \underline{\underline{2\frac{3}{8}}}$$

10p

$$3) \quad a) \quad 2\frac{1}{5} = \underline{\underline{\frac{11}{5}}}$$

$$b) \quad 4\frac{5}{6} = \underline{\underline{\frac{29}{6}}}$$

$$c) \quad 3\frac{1}{2} = \underline{\underline{\frac{7}{2}}}$$

$$d) \quad 5\frac{2}{3} = \underline{\underline{\frac{17}{3}}}$$

$$e) \quad 3\frac{1}{9} = \underline{\underline{\frac{28}{9}}}$$

$$f) \quad 4\frac{5}{6} = \underline{\underline{\frac{29}{6}}}$$

$$g) \quad 3\frac{1}{4} = \underline{\underline{\frac{13}{4}}}$$

$$h) \quad 4\frac{2}{3} = \underline{\underline{\frac{14}{3}}}$$

$$i) \quad 3\frac{7}{10} = \underline{\underline{\frac{37}{10}}}$$

$$j) \quad 2\frac{5}{8} = \underline{\underline{\frac{21}{8}}}$$

10p

$$4) \quad a) \quad \frac{2}{3} \cdot \frac{4}{5} = \underline{\underline{\frac{8}{15}}}$$

$$b) \quad 5 \cdot \frac{4}{7} = \frac{20}{7} = \underline{\underline{2\frac{6}{7}}}$$

$$c) \quad 2 \cdot \frac{9}{4} = \frac{18}{4} = \underline{\underline{4\frac{1}{2}}}$$

$$d) \quad \frac{2}{5} \cdot \frac{7}{3} = \frac{14}{5} = \underline{\underline{2\frac{4}{5}}}$$

$$e) \quad \frac{4}{5} \cdot \frac{10}{12} = \underline{\underline{\frac{2}{3}}}$$

$$f) \quad \frac{5}{6} \cdot 2 = \frac{5}{2} = \underline{\underline{2\frac{1}{2}}}$$

$$g) \quad \frac{24}{8} \cdot \frac{10}{3} = \frac{8}{3} = \underline{\underline{2\frac{2}{3}}}$$

$$h) \quad \frac{4}{7} \cdot \frac{28}{3} = \frac{16}{3} = \underline{\underline{5\frac{1}{3}}}$$

$$i) \quad \frac{8}{10} \cdot \frac{40}{3} = \underline{\underline{12}}$$

$$j) \quad \frac{11}{6} \cdot \frac{8}{2} = \frac{33}{4} = \underline{\underline{8\frac{1}{4}}}$$

$$k) \quad \frac{\cancel{8} \cdot \cancel{3}}{\cancel{3} \cdot \cancel{8}} = \underline{\underline{1}}$$

$$l) \quad \frac{3}{10} \cdot \frac{45}{5} = \frac{9}{4} = \underline{\underline{2\frac{1}{4}}}$$

$$5) a) \frac{2}{5} : \frac{3}{4} \rightarrow \frac{2 \cdot 4}{5 \cdot 3} = \underline{\underline{\frac{8}{15}}}$$

$$b) \frac{1}{4} : 6 \rightarrow \frac{1}{4 \cdot 6} = \underline{\underline{\frac{1}{24}}}$$

$$c) \frac{3}{4} : \frac{7}{2} \rightarrow \frac{3 \cdot 2}{4 \cdot 7} = \underline{\underline{\frac{3}{14}}}$$

$$d) 5 : \frac{2}{3} \rightarrow \frac{5 \cdot 3}{2} = \frac{15}{2} = \underline{\underline{7\frac{1}{2}}}$$

$$e) \frac{2}{7} : \frac{4}{21} \rightarrow \frac{\overset{1}{\cancel{2}} \cdot \overset{3}{\cancel{21}}}{\underset{1}{\cancel{7}} \cdot \underset{2}{\cancel{4}}} = \frac{3}{2} = \underline{\underline{1\frac{1}{2}}}$$

$$f) \frac{3}{5} : \frac{4}{15} \rightarrow \frac{\overset{1}{\cancel{3}} \cdot \overset{3}{\cancel{15}}}{\underset{1}{\cancel{5}} \cdot \underset{4}{\cancel{4}}} = \frac{9}{4} = \underline{\underline{2\frac{1}{4}}}$$

$$g) \frac{4}{5} : 8 \rightarrow \frac{\overset{1}{\cancel{4}}}{\underset{2}{5 \cdot 8}} = \underline{\underline{\frac{1}{10}}}$$

$$h) \frac{3}{2} : \frac{2}{5} \rightarrow \frac{3 \cdot 5}{2 \cdot 2} = \frac{15}{4} = \underline{\underline{3\frac{3}{4}}}$$

$$i) 4 : \frac{3}{4} \rightarrow \frac{4 \cdot 4}{3} = \frac{16}{3} = \underline{\underline{5\frac{1}{3}}}$$

$$j) \frac{1}{5} : \frac{4}{3} \rightarrow \frac{1 \cdot 3}{5 \cdot 4} = \underline{\underline{\frac{3}{20}}}$$

$$k) \frac{3}{8} : 7 \rightarrow \frac{3}{8 \cdot 7} = \frac{3}{56}$$

$$l) \frac{7}{3} : \frac{14}{9} \rightarrow \frac{\overset{1}{\cancel{7}} \cdot \overset{3}{\cancel{9}}}{\underset{1}{\cancel{3}} \cdot \underset{2}{\cancel{14}}} = \frac{3}{2} = \underline{\underline{1\frac{1}{2}}}$$

$$6) \quad a) \quad \frac{2}{3} - \frac{1}{4} = \frac{8}{12} - \frac{3}{12} = \underline{\underline{\frac{5}{12}}}$$

$$b) \quad \frac{2}{9} + \frac{1}{5} = \frac{10}{45} + \frac{9}{45} = \underline{\underline{\frac{19}{45}}}$$

$$c) \quad \frac{2}{5} + \frac{3}{4} = \frac{8}{20} + \frac{15}{20} = \frac{23}{20} = \underline{\underline{1\frac{3}{20}}}$$

$$d) \quad \frac{1}{2} - \frac{1}{3} = \frac{3}{6} - \frac{2}{6} = \underline{\underline{\frac{1}{6}}}$$

$$e) \quad \frac{1}{4} + \frac{3}{8} = \frac{2}{8} + \frac{3}{8} = \underline{\underline{\frac{5}{8}}}$$

$$f) \quad \frac{7}{15} + \frac{3}{10} = \frac{14}{30} + \frac{9}{30} = \underline{\underline{\frac{23}{30}}}$$

$$g) \quad \frac{2}{9} + \frac{1}{3} = \frac{2}{9} + \frac{3}{9} = \underline{\underline{\frac{5}{9}}}$$

$$h) \quad \frac{3}{4} + \frac{5}{6} = \frac{9}{12} + \frac{10}{12} = \frac{19}{12} = \underline{\underline{1\frac{7}{12}}}$$

$$i) \quad \frac{2}{5} + \frac{2}{3} = \frac{6}{15} + \frac{10}{15} = \frac{16}{15} = \underline{\underline{1\frac{1}{15}}}$$

$$j) \quad \frac{3}{4} + \frac{7}{2} = \frac{3}{4} + \frac{14}{4} = \frac{17}{4} = \underline{\underline{4\frac{1}{4}}}$$

$$k) \quad \frac{3}{8} - \frac{1}{6} = \frac{9}{24} - \frac{4}{24} = \underline{\underline{\frac{5}{24}}}$$

$$l) \quad \frac{5}{7} + \frac{3}{8} = \frac{40}{56} + \frac{21}{56} = \frac{61}{56} = \underline{\underline{1\frac{5}{56}}}$$

$$7) \quad a) \quad \frac{7}{4} = 1\frac{3}{4}, \quad \frac{5}{4} = 1\frac{1}{4}, \quad \frac{1}{4}, \quad \frac{3}{4}, \quad \frac{25}{4} = 6\frac{1}{4}$$

$$\left(\frac{1}{4}, \frac{3}{4}, \frac{5}{4}, \frac{7}{4}, \frac{25}{4} \right) \quad \underline{\underline{2p}}$$

$$b) \quad \frac{5}{3} = 1\frac{2}{3} \quad \frac{5}{10} = \frac{1}{2} \quad \frac{5}{7} \quad \frac{5}{2} = 2\frac{1}{2} \quad \frac{5}{6}$$

$$\left(\frac{5}{10}, \frac{5}{7}, \frac{5}{6}, \frac{5}{3}, \frac{5}{2} \right) \quad \underline{\underline{2p}}$$

$$c) \quad \frac{5}{2} = 2\frac{1}{2} \quad 2 \quad 2\frac{1}{4} \quad 1,8 \quad \frac{27}{9} = 3$$

$$\left(1,8, 2, 2\frac{1}{4}, \frac{5}{2}, \frac{27}{9} \right) \quad \underline{\underline{2p}}$$

$$d) \quad \frac{10}{4} = 2\frac{1}{2} \quad \frac{4}{10} = \frac{2}{5} \quad \frac{2}{3} \quad \frac{9}{5} = 1\frac{4}{5} \quad 2$$

$$\left(\frac{4}{10}, \frac{2}{3}, \frac{9}{5}, 2, \frac{10}{4} \right) \quad \underline{\underline{2p}}$$

8) a) $254 \frac{2}{3} : 4 = \underline{\underline{63 \frac{2}{3}}}$

$$\begin{array}{r} 24 \\ \underline{14} \\ 12 \end{array}$$

$$2 \frac{2}{3} : 4 = \frac{8}{3} : 4 = \frac{8:4}{3} = \frac{2}{3}$$

b) $378 \frac{3}{4} : 5 = \underline{\underline{75 \frac{3}{4}}}$

$$\begin{array}{r} 35 \\ \underline{28} \\ 25 \end{array}$$

$$3 \frac{3}{4} : 5 = \frac{15}{4} : 5 = \frac{15:5}{4} = \frac{3}{4}$$

c) $2857 \frac{1}{3} : 12 = \underline{\underline{238 \frac{1}{9}}}$

$$\begin{array}{r} 24 \\ \underline{45} \\ 36 \end{array}$$

$$\begin{array}{r} 97 \\ \underline{96} \end{array}$$

$$1 \frac{1}{3} : 12 = \frac{4}{3} : 12 = \frac{1}{3 \cdot 12} = \frac{1}{9}$$

d) $2537 \frac{1}{4} : 15 = \underline{\underline{169 \frac{3}{20}}}$

$$\begin{array}{r} 15 \\ \underline{103} \\ 90 \\ \underline{137} \\ 135 \end{array}$$

$$2 \frac{1}{4} : 15 = \frac{9}{4} : 15 = \frac{3}{4 \cdot 15} = \frac{3}{20}$$

9) a)

$254 \frac{2}{3}$	FN: 3
$+ 254 \frac{2}{3}$	$+ 2$
$509 \frac{1}{3}$	$\frac{4}{3} = 1 \frac{1}{3}$

c)

$2857 \frac{5}{8}$	FN: 8
$- 837 \frac{1}{8}$	$- 1$
$2020 \frac{1}{2}$	$\frac{4}{8} = \frac{1}{2}$

b)

$378 \frac{3}{4}$	FN: 16
$+ 571 \frac{7}{16}$	$+ 7$
$950 \frac{3}{16}$	$\frac{19}{16} = 1 \frac{3}{16}$

d)

$2537 \frac{2}{3}$	FN: 21
$- 1007 \frac{6}{7}$	$14 + 21 = 35$ $18 - 18$
$1529 \frac{17}{21}$	$\frac{17}{21}$

(8p)

10) a)

$\overset{8}{64} \cdot \overset{17}{85} \cdot \overset{21}{54}$	$= \frac{8}{3} = \underline{\underline{2 \frac{2}{3}}}$
$\overset{9}{45} \cdot \overset{24}{48} \cdot \overset{3}{54}$	

(2p)

b)

$\overset{2}{72} \cdot \overset{3}{39} \cdot \overset{7}{77}$	$= \frac{14}{15}$
$\overset{3}{33} \cdot \overset{12}{108} \cdot \overset{5}{65}$	

(2p)

$$\begin{aligned} \text{II) a) } & 5(x+8) - 3(x-8) = 4(x+8) - 3x \\ & 5x + 40 - 3x + 24 = 4x + 32 - 3x \\ & 2x + 64 = x + 32 \end{aligned}$$

$$\underline{\underline{x = -32}}$$

$$\begin{aligned} \text{b) } & 6(x-4) + 3(x+7) - 2(2x+4) = -1 \\ & 6x - 24 + 3x + 21 - 4x - 8 = -1 \\ & 5x - 11 = -1 \end{aligned}$$

$$5x = 10$$

$$\underline{\underline{x = 2}}$$

$$\begin{aligned} \text{c) } & 15(x-8) - 7(x+4) = 3(3+8x) - 20x + 3 \\ & 15x - 120 - 7x - 28 = 9 + 24x - 20x + 3 \end{aligned}$$

$$8x - 148 = 4x + 12$$

$$4x = 160$$

$$\underline{\underline{x = 40}}$$

$$\text{d) } (3+3x)5 + 7(8-2x) + 4x = 2(x+8) + 45$$

$$15 + 15x + 56 - 14x + 4x = 2x + 16 + 45$$

$$5x + 71 = 2x + 61$$

$$3x = -10$$

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

Ekstra)

$$a) (x-3)^2 = (x+5)^2 \quad \text{< eller!}$$

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

$$x^2 - 3x - 3x + 9 = x^2 + 5x + 5x + 25$$

$$\cancel{x^2} - 6x + 9 = \cancel{x^2} + 10x + 25$$

$$-16 = 16x$$

+ 3p.

$$\underline{\underline{-1 = x}}$$

$$b) (x+4)^2 = (x+3)^2$$

$$\cancel{x^2} + 8x + 16 = \cancel{x^2} + 6x + 9$$

$$2x = -7$$

$$\underline{\underline{x = -3\frac{1}{2} \text{ eller } -3,5}}$$

+ 3p.

$$c) \text{ Ole + Janne} = 680 \text{ €}$$

$$8 \text{ timer} + 12 \text{ time} = 680 \text{ €}$$

$$20 \text{ timer} = 680 \text{ €}$$

$$1 \text{ time} = 34 \text{ €}$$

$$\underline{\underline{\text{Ole}}} (8 \text{ timer} \cdot 34 \text{ €}) = \underline{\underline{272 \text{ €}}}$$

$$\underline{\underline{\text{Janne}}} (12 \text{ timer} \cdot 34 \text{ €}) = \underline{\underline{408 \text{ €}}}$$

+ 2p.

117p + 8 ekstra