	Navn:			
	Klasse: **20** [redacted]		Dato: 9. december 2020	Fag: Matematik A

Opgave 024

a) $\frac{x+7}{3} - \frac{3x-7}{4} = \frac{x-1}{2}$ $\quad 1\cdot3\cdot4\cdot2$

$4\cdot2\cdot(x+7) - 3\cdot2\cdot(3x-7) = 3\cdot4\cdot(x-1)$

$8x + 56 - (18x - 42) = 12x - 12$

$8x + 56 - 18x + 42 = 12x - 12$

$-10x + 98 = 12x - 12$

$-10x - 12x = -12 - 98$

$-22x = -110 \quad |:-22$

$x = 5$

b) $\frac{3}{x-3} - \frac{1}{2x-6} = \frac{5}{6}$

$\frac{6}{2x-6} - \frac{1}{2x-6} = \frac{5}{6}$

$\frac{6-1}{2x-6} = \frac{5}{6}$

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

$5\cdot(2x-6) = 5\cdot6$

$10x - 30 = 30$

$10x = 30 + 30$

$10x = 60 \quad |:10$

$x = 6$

	Navn:			
	Klasse: **20** [redacted]		Dato: 9. december 2020	Fag: Matematik A

c) $\frac{2+x}{5x-15} + \frac{1}{5} = \frac{7}{15} + \frac{2}{3x-9}$ $\quad 1 \cdot (5x-15) \cdot (3x-9) \cdot 5 \cdot 15$

$$\frac{(2+x)\cdot 5 + 1\cdot(5x-15)}{25x-75} = \frac{7}{15} + \frac{2}{3x-9}$$

$$\frac{10+5x+5x-15}{25x-75} = \frac{7}{15} + \frac{2}{3x-9}$$

$$\frac{10x-5}{25x-75} = \frac{7}{15} + \frac{2}{3x-9}$$

$$\frac{10x-5}{25x-75} = \frac{7\cdot(3x-9)+2\cdot 15}{15\cdot(3x-9)}$$

$$\frac{10x-5}{25x-75} = \frac{(21x-63)+30}{45x-135}$$

$$\frac{10x-5}{25x-75} = \frac{21x-33}{45x-135}$$

$$(10x-5)\cdot(45x-135) = (21x-33)\cdot(25x-75)$$
$$450x^2 - 225x - 1350x + 675 = 525x^2 - 825x - 1575x + 2475$$
$$450x^2 - 1575x + 675 = 525x^2 - 2400x + 2475$$
$$450x^2 + 825x = 525x^2 + 1800$$
$$-75x^2 + 825x = 1800 \qquad |:-75$$
$$x^2 - 11 = -24$$
$$x^2 - 11 + 24 = 0$$

$$\frac{11 + \sqrt{-11^2 - 4\cdot 1\cdot 24}}{2\cdot 1}$$

$$\frac{11 + \sqrt{-11^2 - 96}}{2}$$

$$\frac{11 + \sqrt{25}}{2}$$

$$\frac{11+5}{2}$$

$$\frac{16}{2}$$

$$= 8$$