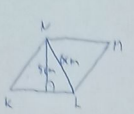
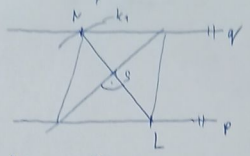
TDÚ 1S

1) 6 lidí ... 8 hod. 0 – 2 hodina ... $\frac{1}{4}$ stromu
4 lidé ... 12 hod. 3 – 5 hodina ... $\frac{1}{4}$ stromu
$\} = \frac{1}{2}$ stromu ⇒ zbytek za 4 hodiny 8^{00} hod + 2 + 3 + 4 = 17^{00}

2)





3) a) $x^4 - (3x+2)^2 = (x^2)^2 - (3x+2)^2 = [x^2 - (3x+2)][x^2 + (3x+2)] = (x^2 - 3x - 2)(x^2 + 3x + 2)$ $\quad A^2 - B^2 = (A+B)(A-B)$

b) $x^3 - 12 + 3x^2 - 4x = x(x^2 - 4) + 3(x^2 - 4) = (x^2 - 4)(x+3) = (x+2)(x-2)(x+3)$

c) $18x^2 - 60x + 50 = 2(9x^2 - 30x + 25) = 2(3x-5)^2$

4) 1. den ... x
2. den ... $\frac{11}{10}x$
3. den ... $\frac{6}{5} \cdot \frac{11}{10}x = \frac{66}{50}x$
celkem ... 684

$x + \frac{11}{10}x + \frac{66}{50}x = 684 \,/\cdot 50$

$50x + 55x + 66x = 34\,200$

$171x = 34\,200$

$x = 200$

684 · 50 = 3420 · 10 = 34 200

1. den ... 200 2. den ... 220 3. den ... 264

5) $\frac{a+6}{a-3} - 5 = \frac{a+12}{3-a} - 4$

$\frac{a+6}{a-3} - 5 = \frac{-a-12}{a-3} - 4 \,/\cdot (a-3)$

$a + 6 - 5(a-3) = -a - 12 - 4(a-3)$

$a + 6 - 5a + 15 = -a - 12 - 4a + 12$

$-4a + 21 = -5a \,/ + 5a - 21$

$a = -21$

Zk. $L = \frac{-21+6}{-21-3} - 5 = \frac{-15}{-24} - 5 = \frac{5}{8} - 5 = \frac{5-40}{8} = \frac{-35}{8}$

$P = \frac{-21+12}{3-(-21)} - 4 = \frac{-9}{24} - 4 = \frac{-9-96}{24} = \frac{-105}{24} = \frac{-35}{8}$

$L = P$

6)

$d = 10\,cm$
$r = 5\,cm$
$V = 10\,cm$

$\rho = 900\ kg/m^3$

$V = \pi r^2 V$

$V = 3{,}14 \cdot 5^2 \cdot 10$

$V = 785\,cm^3 = 0{,}000\,785\,m^3$

$m = \rho \cdot V$

$m = 900 \cdot 0{,}000\,785$

$m = 0{,}71\,kg > 0{,}5\,kg$ Závaží nemůže.