HW 7.

#1. If y is proportional to x

$$\frac{y_1}{x_1} = \frac{y_2}{y_2} \qquad \frac{144}{12} = \frac{y_2}{7}$$

$$y_2 = (144 \cdot 7) : 12 = \frac{144}{12} \cdot 7 = 84.$$

#2. $100a + 10b + c$

$$a + c = b.$$

$$100a + 10(a+c) + c = 100a + 10a + 10c + c =$$

$$= 110a + 11c = 11 \cdot 10a + 11c = 11(10a + c).$$

#3.

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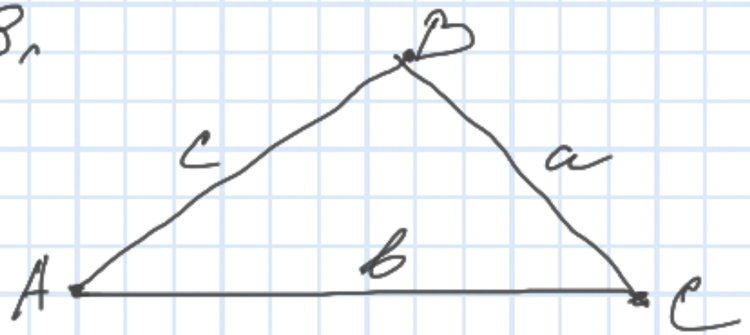

$c + 200 = a + b$

$b + 300 = c + a.$

$+ \begin{array}{l} c + 200 + c = a + b + c \\ b + 300 + b = c + a + b \end{array}$

$2c + 2b + 500 = 2a + 2b + 2c$

$2a = 500$

$a = 250$ km

#4. $S_1 = a \cdot b$

$S_2 = 1.1a \cdot 1.1b = 1.21\, a \cdot b = 1.21 S_1$

21%.

#5. $S = v \cdot t$.

today my speed is 0.8 of my normal speed.

$S = 0.8v \cdot t_2 = v \cdot t_1$

$t_1 = \frac{0.8 v t_2}{v} = 0.8 t_2$.

$t_2 = \frac{t_1}{0.8} = 1.25$ or increase by 25%.

#6. $x + y = 51$.

$0.3x = 0.6y$.

$x = 2y$

$2y + y = 51$

$3y = 51$ $y = 17$, $x = 34$.

#7. $\frac{1}{10}$; $\frac{1}{15}$.

$\frac{1}{10} \cdot 2.5 = \frac{1}{10} \cdot \frac{25}{10} = \frac{25}{100} = \frac{1}{4}$

in 2.5 hours $\frac{1}{4}$ of the pool will be filled by the first pipe.

$\frac{1}{10} + \frac{1}{15} = \frac{3+2}{30} = \frac{5}{30} = \frac{1}{6}$ part of the pool filled by both pipes in 1 hour.

$\frac{1}{6} \cdot t = \frac{3}{4}$ $\quad t = \frac{3}{4} \cdot 6 = \frac{3 \cdot 3}{2} = 4,5.$

$\frac{1}{6} \cdot t = \frac{1}{2}$ $\quad t = \frac{1}{2} \cdot 6 = 3.$

#3. last digit of 94^6 is 4^6 6.

P.	1	2	3	4	5	6
l.d.	4	6	4	6	4	6.

(4) (16) (64)

last digit of 76^6 is 6.

last digit of 51^6 is 1 $\quad 6+6+1=13.$

last digit of the sum $94^6+76^6+51^6$ is 3.