1. Calculate: $\dfrac{(\frac{5}{12} - \frac{1}{4}) \times 3}{(\frac{3}{4} - \frac{1}{2}) \times 2} =$

Combined Effort Problems

2. Cities ***A*** and ***B*** are 280 km apart. At noon a bus leaves from ***A*** for ***B*** moving 50 km/h. At the same time a truck leaves from B for A moving 70 km/h. When will …

a). … the bus arrive at B? _____

b). … the truck arrive at A? _____

c). … the bus meet the truck? _____

_____

3. In an airport a boarding gate is 800 meters away from the passport control (1 km = 1000 m). A conveyor tape connecting the passport control and the boarding gate in an airport moves 3 km/h. A man walks 5 km/h. How long will it take the man to walk to …

a). … walk to the boarding gate on the floor? _____

b). … get there by the conveyor tape if the man just stands on it? _____

_____

_____

c). … to walk to the boarding gate over the conveyor tape? _____

_____

_____

4. An old tractor can plow a corn field in 15 days. A newer model can do the same job in 10 days. How long will it take the two tractors to do the work together?

_____

_____

Mixed Fractions vs Improper Fractions:

5. Calculate:

$2\frac{2}{3} + 1\frac{7}{9} =$ $2\frac{2}{3} - 1\frac{7}{9} =$

$2\frac{2}{3} \cdot 1\frac{7}{9} =$ $2\frac{2}{3} : 1\frac{7}{9} =$

6. Solve the equations:

a). $2 \cdot (2x - 3) - (5 - x) = (6x - 14) : 2$ ***b).*** $12 - |3x + 4| = 7$

7. There are three vectors: $\vec{e}=(-1,3)$, $\vec{a}=(2,1)$, and $\vec{g}=(1,-2)$. Calculate the coordinates of the following vectors:

$\frac{1}{2}\vec{e}=(\quad,\quad)$

$\frac{3}{2}\vec{a}=(\quad,\quad)$

$-2\vec{g}=(\quad,\quad)$

$\vec{e}+\vec{g}=(\quad,\quad)$

$\vec{a}-\vec{g}=(\quad,\quad)$

$\vec{a}-2\vec{g}=(\quad,\quad)$