3010 PSet 1

1.4 Answer: $\frac{1}{16}$ $(\overline{16})$

Sol'n:

1	$\overline{28}$
$\frac{1}{2}$	$\overline{56}$
$\frac{1}{4}$	$\overline{112}$

$\overline{28}\ \overline{56}\ \overline{112} = \boxed{\overline{16}}$ ← by common denominator

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1.10 Answer: $\boxed{9}$

Sol'n: Try 9: $9 + \frac{2}{3}\cdot 9 = 15$

$15 - \frac{1}{3}\cdot 15 = 10 \Rightarrow$ 9 works.

If they try something other than 9, here's how the sol'n should go (eg)

Try 3: $3 + \frac{2}{3}\cdot 3 = 5$

$5 - \frac{1}{3}\cdot 5 = \frac{10}{3}$

$\frac{10}{3}$ must be scaled by 3 to give 10, so the guess of 3 must be scaled by 3 to give $\boxed{9}$

1.17

a) $\frac{7}{5} = 1 + \frac{2}{5} = 1 + \frac{24}{60} = \boxed{1;24}$

b) $\frac{13}{15} = \frac{52}{60}$ ——— $\boxed{;52}$

c) $\frac{11}{24} = \frac{55}{60}\cdot\frac{1}{2} = \frac{27}{60} + \frac{30}{3600} = \boxed{;27,30}$

d) $\frac{33}{50} = \frac{198/5}{60} = \frac{39+3/5}{60} = \frac{39}{60} + \frac{36}{3600} = \boxed{;39,36}$

They must show some intermediate step for this problem (o/w they could just have copied answers from back of book)

1.27

$v+u = 2;18,14,24$

$+\quad v-u = \ ;26,02,30$

$2v = 2;44,16,54$

$\Rightarrow\ v = 1;22,08,27$

$u = \ ;56,05,57$

rescale to integers x, y, d such that $v = \frac{d}{y}$, $u = \frac{x}{y}$ yields

$x = 56,05,57;$

$d = 01,22,08,27;$

$y = 01,00,00,00;$

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1.27 ctd This triple x, y, z has a common factor of 3. Divide by 3 to get

$x =$	18, 41, 59;	$=$	67, 319
$y =$	20, 00, 00;	$=$	72,000
$d =$	27, 22, 49;	$=$	98,569
	sexagesimal		decimal

(either base 60 or base 10 sol'n is acceptable)