

A6

n, y s.t.

$$\frac{2}{3}n = \frac{3}{7}y \Rightarrow n = \frac{9}{14}y$$

$$n + y > 1000$$

$$TP = n + y = \frac{23}{14}y$$

$$\min.(n + y) \equiv \min.\left(\frac{23}{14}y\right)$$

1012 Ans

$$\begin{aligned} \frac{23}{14}y &> 1000 \\ \text{or } y &> 1000 \times \frac{14}{23} \\ y &> \frac{14000}{23} \\ y &> 608.6956... \\ y &> 608 \end{aligned}$$

$$\begin{aligned} y &> 608 \dots \\ y_{\min} &= 616 \\ n_{\min} &= 396 \end{aligned}$$

A13

Total stock = n

$$\text{Voted} = 0.85n$$

$$\text{winning vote} = 0.625 \times 0.85n$$

$$\text{margin of victory} = WV - LV$$

$$\begin{aligned} &= 0.625 \times 0.85n - 0.375 \times 0.85n \\ &= 0.25 \times 0.85n \\ &= 3400 \end{aligned}$$

$$0.25 \times 0.85n = 3400$$

$$n = \frac{3400}{0.25 \times 0.85}$$

$$n = \frac{3400}{\frac{1}{4} \times 0.17 \times 5}$$

$$n = \frac{3400 \times 4}{0.17 \times 5}$$

$$n = \frac{200 \times 4 + 20}{\sqrt{4} \times 5}$$

$$n = 16000$$

$$(2) 16000$$

[A] 6

$$2|p| + 6|q| = 15$$

$$|p| - 3|q| = -6$$

$$\begin{array}{rcl} 2p + 6q & = & 15 \\ |p| - 3q & = & -6 \\ - (2p - 6q & = & -12) \\ \hline 6 & & 12q = 27 \\ & & q = 2.25 \end{array}$$

$p = |p|$
 $q = |q|$

$q = 2.25$
 $p = 0.75$

$$p + q \geq -2$$

X	-0.75	-2.25
✓	-0.75	2.25
✓	0.75	-2.25
✓	0.75	2.25

$(p, q) = (-0.75, 2.25)$

(3) 3

C/2

$$ax + by + (t-s) = 0$$

$$bx + ay + (s-r) = 0$$

(m, m) is a solⁿ:

$$am + bm + (t-s) = 0$$

$$bm + am + (s-r) = 0 \quad \Rightarrow \quad t-s = s-r$$

$$\boxed{r+t=2s}$$

$$(a+b)m + (t-s) = 0$$

$$(a+b)r + (s-r) = 0$$

(1) (3) (4) Ans

C/3

$$d = 370 \text{ km}$$

$$\frac{250}{v_t} + \frac{120}{v_c} = 4 \text{ h}$$

$$- \frac{130}{v_t} + \frac{240}{v_c} = 4 \text{ h} + 18 \text{ h} = 4.8 \text{ h}$$

$$\frac{500}{v_t} + \frac{240}{v_c} = 8.0 \text{ h}$$

$$\frac{370}{v_t} + 0 = 3.7 \text{ h}$$

$$a \quad v_t = \frac{370 \text{ km}}{3.7 \text{ h}}$$

$$v_t = 100 \text{ km h}^{-1}$$

$$v_c = 80 \text{ km h}^{-1}$$

(2) (4) Ans

AS

$$\begin{array}{r} \underline{ab} > \underline{cd} \\ 10a+b & 10c+d \end{array}$$

$$4 \text{ digit} = \underline{abcd} = 1000a + 100b + 10c + d$$

$$\begin{array}{r} \text{sum of 2 digits} = 10a+b+10c+d \\ \hline 5742 = 990a + 99b \end{array}$$

$$5742 = 99(10a+b)$$

$$\underline{ab} = \frac{5742}{99}$$

$$\boxed{\underline{ab} = 58} \quad \text{Ans}$$

$$\begin{array}{r} 58 \\ 99 \overline{) 5742} \\ \underline{495} \\ 792 \\ \underline{792} \\ 0 \end{array}$$