

①

Day: _____

QSA-Ability

Date: _____

Mock 3

Section II

Question 6

a) Let "x" denote the number (common multiple) of blocks.

↓ Number of A blocks = $4x$

|| || B || = $7x$

|| || C || = $3x$

|| || D || = x

→ "A blocks are 50 more than C blocks"

⇒ Leads to the following equation

$$4x = 3x + 50$$

$$x = 50$$

$$\begin{aligned} \text{Number of 'B' blocks} &= 7x(50) \\ &= \boxed{350} \end{aligned}$$

b) Pair of shoes cost = \$80

Discount = 15%

Sales Tax = 10%

→ We will first apply the discount on the cost price = $80 \times \frac{15}{100} = \12

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Cost price after discount

$$= \$80 - \$12$$

$$= \$68$$

→ We will apply the sales tax on the discounted price now.

$$68 \times \frac{10}{100} = \$6.8$$

$$\underline{\text{Final Price}} = \$68 + \$6.8$$

$$= \boxed{\$74.8}$$

c) Distance = 42 km

Speed = 36 km/hr

Time of departure = 4:00 pm

→

$$\text{Travelled Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$\Rightarrow \text{Time} = \frac{42}{36} = \frac{7}{6} \text{ hrs}$$

$$\frac{7}{6} \text{ hrs} \Rightarrow \text{mins} = \frac{7}{6} \times \frac{60}{1} = 70 \text{ mins}$$

Departure time + travel time =

Arrival time

$$= 4:00 + 1:10 = \boxed{5:10 \text{ pm}}$$

d) Jumbled Words

- i uninterested
- ii white

Question 7

a) Formula for volume of cylinder: $\pi r^2 h$

→ conversion required

: 1 meter = 100cm

⇒ Radius = 30cm

Height = 100cm

$V = \pi r^2 h$

$V = \pi \times 30^2 \times 100$

$V = \pi \times 900 \times 100$

$V = \pi \times 90000$

$V = 9 \times 282,780$

b) Let "x" be age. ^{→ common multiple} Denote boys age as: 3x, 5x, 7x

→ Average of all three boys is 15

⇒ $\frac{3x + 5x + 7x}{3} = 15$

$15x = 45$

$x = 3$

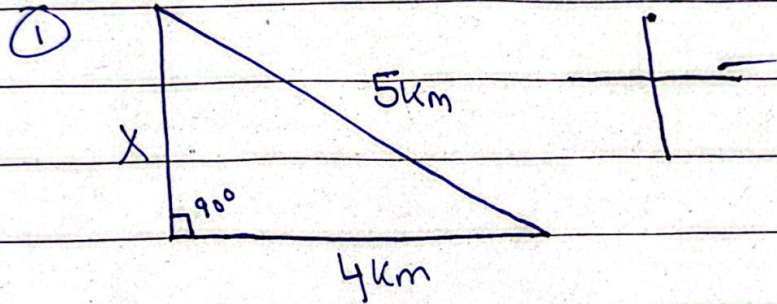
→ Annly.
Age of youngest boy
3(3)
= 9 years

- c) The wrong number is $\boxed{447}$ as
 the number as per pattern being
 followed should have been $\underline{\underline{448}}$
- i
ii Pattern = $+2, +4, +2, +4 \Rightarrow (+2)$
 $\boxed{= 25}$

d) $\textcircled{N/A}$

Question 8

a)



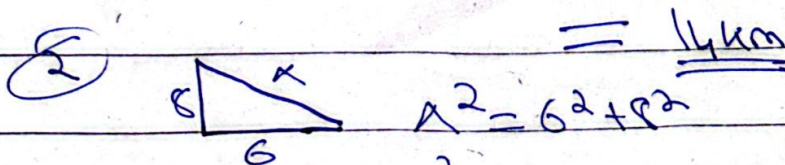
$$5^2 = 4^2 + x^2$$

$$25 - 16 = x^2$$

$$9 = x^2 \quad x = 3 \text{ km}$$

$$\text{Triangle 1 perimeter} = 5 + 4 + 3 = \underline{\underline{12 \text{ km}}}$$

$$\text{Additional distance} = 6 \text{ km} + 6 \text{ km}$$



$$x^2 = 6^2 + 6^2$$

$$x^2 = 100$$

$$\underline{\underline{x = 10 \text{ km}}} \rightarrow \text{Away from Starting Point}$$

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b) 5 Friends and Total Pocket

$$\text{Money} = 8000$$

$$(H) \text{ Hassan} = \frac{1}{3} \times \text{Ali}$$

$$(A) \text{ Ali} = 5 \times \text{Akbar}$$

$$(K) \text{ Akbar} = 3 \times \text{Nasir}$$

$$(N) \text{ Nasir} = ?$$

$$(S) \text{ Shahbaz} = \text{Nasir} + \text{Ali}$$

Let equation be

$$\Rightarrow H + A + K + N + S = 8000$$

(Substitution)
 $\Rightarrow \frac{1}{3} A + A + K + N + S = 8000$

(Substitution)
 $\Rightarrow \frac{1}{3} A + A + 3N + N + S = 8000$

(Substitution)
 $\Rightarrow \frac{1}{3} A + A + 4N + N + S = 8000$

$$\Rightarrow \frac{1}{3} A + 2A + 5N = 8000$$

$$\Rightarrow \frac{7}{3} A + 5N = 8000$$

↓

$$A(\text{Ali}) = 5 \times \text{Akbar}(K)$$

$$A(\text{Ali}) = 5 \times 3N(\text{Nasir})$$

$$\boxed{A = 15N}$$

$$\Rightarrow \frac{7}{3} A + 5N = 8000$$

↪ Substitute $A = 15N$

$$\Rightarrow \frac{7}{3} (15N) + 5N = 8000$$

$$\Rightarrow 35N + 5N = 8000$$

$$\Rightarrow 40N = 8000$$

$$\Rightarrow N = \frac{8000}{40} = \boxed{200}$$

$$\boxed{\text{Nasis} = 200}$$

$$\text{Akbar} = 3 \times 200 \text{ (Nasis)}$$

$$\boxed{= 600}$$

$$\text{Ali} = 5 \times 600 \text{ (Akbar)}$$

$$\boxed{= 3000}$$

$$\text{Hesson} = \frac{1}{3} \times 3000 \text{ (Ali)}$$

$$\boxed{= 1000}$$

$$\text{Shahbaz} = 200 \text{ (Nasis)} + 3000 \text{ (Ali)}$$

$$\boxed{= 3200}$$

So: ① Nasis = 200 ② Ali = 3000 ③ Shahbaz = 3200
 ⇒ ④ Akbar = 600 ⑤ Hesson = 1000

④

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Q) • Surface Area of sphere Formula

$$A = 4\pi r^2$$

• Volume of sphere Formula

$$= \frac{4}{3}\pi r^3$$

$$\rightarrow \text{Surface area} = 4 \times \pi \times 7^2$$

$$= 28^2 \times \pi$$

$$= 615$$

$$\text{Volum} = \frac{4}{3} \times \pi \times 7^3$$

$$= \frac{4}{3} \times \pi \times 343$$

$$= \frac{1372}{3} \pi$$

$$= 457.33 \pi$$

$$= 1436.7$$

Q) Distributing Rs. 4320

$$Zain = 2x = \text{Rs. } 720$$

$$Aslam = 3x = \text{Rs. } 1080$$

$$Ashraf = 7x = \text{Rs. } 2520$$

Working:

$$Zain = \frac{2}{12} \times 4320 \Rightarrow x = \frac{720}{2} = 360 \quad \left| \begin{array}{l} \text{Aslam} = 3 \times 360 \\ \text{Ashraf} = 7 \times 360 \end{array} \right.$$