

## ANSWER KEY

| QUESTION | CORRECT ANSWER   |
|----------|--|
| 1        | <p><b>E</b></p> <p>1 box = 9 teacups and 4 times as many saucers<br/> <math>9 \times 4 = \mathbf{36 \text{ saucers}}</math></p>  |
| 2        | <p><b>D</b></p> <p>Art project = 35 paper<br/> Sold in packs of 8<br/> <math>35/8 = 4.375 \leftarrow</math> round up to 5<br/> Therefore the answer is <b>5 packs</b></p>  |
| 3        | <p><b>C</b></p> <p>Total people on the bus = 50<br/> People who got off the bus = <math>\frac{3}{10} \times 50 = 15</math><br/> Left on the bus = <math>50 - 15 = \mathbf{35}</math></p>   |
| 4        | <p><b>D</b></p> <p>Length = 5 meters<br/> Width = 2 meters less than the Length = <math>5 - 2 = 3</math> meters</p> <p>Perimeter = <math>5 + 5 + 3 + 3 = \mathbf{16 \text{ meters}}</math></p>                                       |
| 5        | <p><b>A</b></p> <p>per line = 0.25 <math>\leftarrow</math> 1 interval then divided to 4 lines<br/> Closest = 2.25 km<br/> Furthest = 3.5 km<br/> <math>3.5 - 2.25 = \mathbf{1.25 \text{ km or } 1 \frac{1}{4} \text{ km}}</math></p> |
| 6        | <p><b>A</b></p> <p>5 notebooks = \$15<br/> Each notebook = <math>15/5 = \mathbf{\\$3}</math></p>   |
| 7        | <p><b>C</b></p> <p>Math = <math>1 \frac{1}{2}</math> hours<br/> History = <math>1 \frac{1}{4}</math> hours<br/> total time = <math>1 \frac{1}{2} + 1 \frac{1}{4} = 2 (2+1) / 4 = \mathbf{2 \frac{3}{4} \text{ hours}}</math></p>     |

|    |  |
|----|--|
| 8  | <p><b>B</b></p> <p>5 balls = 5 grams each<br/> Total mass with box = 28 grams<br/> Box = total - mass of balls<br/> Box = <math>28 - 5(5) = 28 - 25 = 3</math> <b>grams</b></p>  |
| 9  | <p><b>C</b></p> <p>2 pair of parallel side<br/> 4 right angle<br/> therefore it has 4 side<br/> A and B are already wrong<br/> it has 4 90 degree angle<br/> therefore D and E are wrong<br/> therefore the answer is <b>rectangle</b></p> |
| 10 | <p><b>A</b></p> <p>15,21,27<br/> <math>12+3= 15</math><br/> <math>18+3= 21</math><br/> <math>24+3= 27</math><br/> because the sequence adds 3.</p>   |
| 11 | <p><b>A</b></p> <p>1: 25 million<br/> X : 1.6 billion</p> <p>X: 1.6 billion = 1 : 25 million<br/> <math>X = 1.6 \text{ billion} / 25 \text{ million}</math><br/> X = <b>64</b></p>   |

|    |   |
|----|---|
| 12 | <p><b>A</b></p> <p>Joshua = 500 knots in 6 hours<br/>         Arthur = 1000 knots in 8 hours<br/>         make it per hour<br/>         Joshua = <math>500/6</math> knots per hour<br/>         Arthur = <math>1000/8</math> knots per hour</p> <p>In 9 hours<br/>         Joshua<br/> <math>9 (500/6) = 750</math> knots<br/>         Arthur<br/> <math>9 (1000/8) = 1125</math> knots<br/> <math>1125 - 750 = \mathbf{375 \text{ knots}}</math></p> |
| 13 | <p><b>B</b></p> <p>40 cm x 20 cm x 60 cm<br/> <math>V = L \times W \times H</math><br/> <math>V = (40 \times 20 \times 60) / 2 \leftarrow</math> half full<br/> <math>V = 24\,000 \text{ cm}^3</math></p> <p>if transferred on 40 cm x 40 cm base container<br/> <math>40 \times 40 \times H = 24\,000</math><br/> <math>H = \mathbf{15 \text{ cm}}</math></p>  |
| 14 | <p><b>A</b></p> <p><math>100 \times 200 = 40 \text{ pcs}</math><br/> <math>A = 100 \times 200 \times 40</math><br/> <math>A = 800\,000 \text{ cm}^2</math><br/>         200 x 400 tile = pcs?<br/> <math>200 \times 400 \times X = 800\,000</math><br/> <math>X = \mathbf{10 \text{ pcs}}</math></p>  |
| 15 | <p><b>D</b></p> <p><math>7 \times N = 3N - 4</math><br/> <math>N = -1</math><br/> <math>4N + 5</math><br/> <math>4(-1) + 5 = \mathbf{1}</math></p>  |
| 16 | <p><b>D</b></p> <p>2:5<br/> <math>\frac{1}{2} (2x)(5x) = 20</math><br/> <math>x = 2</math><br/>         5 is the ratio of the longer leg<br/> <math>5 \times 2 = \mathbf{10 \text{ cm}}</math></p>  |

|    |  |
|----|--|
| 17 | <p><b>D</b></p> <p><math>12/12 - 7/12 = 5/12 \leftarrow</math> girls<br/> <math>(5/12)(x) = 1/4</math><br/> <math>x = \mathbf{0.6 \text{ or } \frac{3}{5}}</math></p>  |
| 18 | <p><b>E</b></p> <p>total = 400 ml<br/> 20% mermaid tears<br/> 100 ml spring water added<br/> <math>400(0.2) = 80</math> ml<br/> add 100 ml spring water<br/> <math>400 + 100 = 500</math> ml<br/> <math>80/500 = \mathbf{0.16 \text{ or } 16\%}</math></p> |
| 19 | <p><b>C</b></p> <p>Get area of both then divide<br/> tile = <math>50 \times 50 = 2500 \text{ cm}^2</math><br/> wall = <math>3000 \times 2500 = 7\,500\,000 \text{ cm}^2</math><br/> <math>7500000/2500 = \mathbf{3000 \text{ tiles}}</math></p>            |
| 20 | <p><b>E</b></p> <p>Patricia = 4hrs<br/> both = <math>2\frac{1}{2}</math> hours<br/> Rebecca = ??</p> <p><math>1/(2\frac{1}{2}) = 1/4 + 1/R</math><br/> <b>R = 6 hours</b></p>  |
| 21 | <p><b>C</b></p> <p>fraction of balls either blue or white = blue + white / total<br/> <math>= 17 + 21 / 33+17+21</math><br/> <math>= \mathbf{38/71}</math></p>   |
| 22 | <p><b>B</b></p> <p>9 mins 27 secs every 7 days<br/> convert to mins or secs<br/> <math>567 \text{ secs} / 7 = 81 \text{ secs per day}</math><br/> convert back<br/> <math>= \mathbf{1 \text{ min } 21 \text{ secs}}</math></p>                             |

|    |  |
|----|--|
| 23 | <p><b>D</b></p> <p>Let<br/> Robert = R<br/> Mark = M<br/> Agnes = A<br/> <math>R = M + 9</math><br/> <math>R = A - 9</math><br/> <math>R + (R - 9) + (R + 9) = 96</math><br/> <math>R = 32</math><br/> <math>A = R + 9</math><br/> <math>A = 32 + 9</math><br/> <math>A = \mathbf{41 \text{ years old}}</math></p> |
| 24 | <p><b>A</b></p> <p>75 meters cuts into 2<br/> <math>(18 + 2L) + L = 75</math><br/> <math>L = 19 \text{ m} \leftarrow \text{shorter piece}</math><br/> <math>18 + 19(2) = \mathbf{56 \text{ m}}</math></p>  |
| 25 | <p><b>D</b></p> <p>expected 60% of those who are invited will attend<br/> 300 people needed<br/> least number of people to invite<br/> <math>X (0.6) = 300</math><br/> <math>X = \mathbf{500}</math></p>   |
| 26 | <p><b>B</b></p> <p>minimum profit = minimum selling price - maximum cost price<br/> <math>\\$1500 - \\$3000 = \\$1500</math><br/> <math>1500 \times 20 \text{ cars} = \mathbf{\\$30,000}</math></p>  |

|    |  |
|----|--|
| 27 | <p><b>A</b></p> <p>10 metres</p> <p>2 metres</p> <p>6 metres</p> <p>3 metres</p> <p><b>A1</b></p> <p><b>A2</b></p> <p><math>10-3 = 7\text{ m}</math></p> <p><math>6-2 = 4\text{ m}</math></p> <p><math>A1 = 10 \times 2 = 20\text{ m}^2</math><br/> <math>A2 = 4 \times 3 = 12\text{ m}^2</math><br/> <math>20 + 12 = 32\text{ m}^2</math></p> |
| 28 | <p><b>C</b></p> <p>donated 280 books<br/> 30% = science<br/> 25% = general knowledge<br/> rest = history</p> <p><math>100\% - 30\% - 25\% = 45\%</math><br/> <math>280 (0.45) = 126\text{ books}</math></p>  |
| 29 | <p><b>A</b></p> <p>the figure shows colored = 1 rectangle<br/> uncolored 2 parts combine (cut the rectangle diagonally ) = 1 rectangle ← same size because of midpoint<br/> therefore the answers is 1:1</p>   |
| 30 | <p><b>B</b></p> <p>tennis:baseball = 5:3<br/> total in ratio = 8<br/> the total should be divisible by 8<br/> therefore the answer is <b>B</b> because 500 is not divisible by 8</p>   |