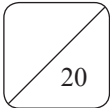


Revision Test 1

Duration: 40 minutes



1. (a) Simplify $\frac{2w - 8}{w^2 + w - 20}$.
- (b) Factorize $xy - x + 2y - 2$.
- (c) Solve $(z - 1)(z + 1) = 5z$, giving your answer correct to 2 decimal places.

Answer (a) _____ [2]

(b) _____ [2]

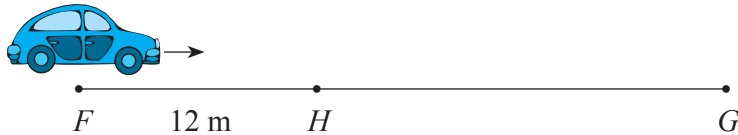
(c) $z =$ _____ or _____ [3]

-
2. (a) Given that $x = 3.4 \times 10^{-5}$ and $y = 8.2 \times 10^{13}$, evaluate the value of $\frac{y}{x^2}$.
Express your answer in standard form and correct to 1 decimal place.
- (b) Sean has a total saving of \$25 000 and he plans to invest it for a period of 3 years. Given that he may earn \$1875 simple interest if he invests his savings for 3 years at a rate of $x\%$ per annum. Calculate the value of x .

Answer (a) _____ [2]

(b) _____ [2]

3. Answer the whole of this question on a sheet of graph paper.



A toy car started to move from station F to station G which were 40 metres apart. After 20 seconds, it reached station H , which was 12 m away, and stopped there for half a minute. Then, it completed the journey at an average speed of 0.8 m/s and finally arrived at station G .

- (a) Using a scale of 2 cm to represent 10 seconds for the time taken on the horizontal axis and 2 cm to represent 5 metres for the distance travelled on the vertical axis, draw the distance-time graph for this journey. [3]
- (b) Find
- (i) the time taken to travel from station H to station G , [2]
 - (ii) the average speed of the journey from station F to station H , [2]
 - (iii) the average speed of the whole journey. [2]

–End–

Solutions to Revision Test 1

1. (a) $\frac{2w-8}{w^2+w-20} = \frac{2(w-4)}{(w-4)(w+5)}$ [1]
 $= \frac{2}{w+5}$ [1]

(b) $xy - x + 2y - 2 = x(y-1) + 2(y-1)$ [1]
 $= (x+2)(y-1)$ [1]

(c) $(z-1)(z+1) = 5z$
 $z^2 - 1 = 5z$
 $z^2 - 5z - 1 = 0$ [1]

$z = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(1)(-1)}}{2(1)}$ [1]

$= \frac{5 \pm \sqrt{29}}{2}$
 $= -0.19 \text{ or } 5.19$ [1]

2. (a) $\frac{y}{x^2} = \frac{8.2 \times 10^{13}}{(3.4 \times 10^{-5})^2}$
 $= \frac{8.2 \times 10^{13}}{1.156 \times 10^{-9}}$
 $= 7.1 \times 10^{22} \text{ (1 d.p.)}$ [2]

(b) Simple interest $= \frac{PRT}{100}$
 $\$1875 = \frac{\$25\,000(x)(3)}{100}$ [1]

$750x = \$1875$
 $x = 2.5$ [1]

3. (a) (See diagram on page S2)

| Remarks |
|--|
| Award 1 mark for all points accurately plotted. |
| Award 1 mark for labelling of <u>both axes</u> . |
| Award 1 mark for proper joining of lines. |

(b) (i) Time taken ($H \rightarrow G$) $= 85 - 50$ [1]
 $= 35 \text{ s}$ [1]

(ii) Average speed $= \frac{12}{20}$ [1]
 $= 0.6 \text{ m/s}$ [1]

(iii) Average speed $= \frac{40}{85}$ [1]
 $= \frac{8}{17} \text{ m/s}$ [1]

3. (a)

