**Past Papers Worksheet P4 Average Speed IGCSE Mathematics 0580**

**Speed = Distance / Time** **Average Speed = Total Distance/ Total Time**

1. Liz takes 65 seconds to run 400m.
   Calculate her average speed in m/s. [2]
   **0580/23/M/J/18 Q3)**

2. In the book, the distance between two planets is given as $4.07 \times 10^{12}$ kilometres.
   The speed of light is $1.1 \times 10^{9}$ kilometres per hour.
   Calculate the time taken for light to travel from one of these planets to the other.
   Give your answer in days and hours. [3]
   **0580/42/M/J/12 Q5)(b)**

3. Geneva and Hamburg are 864Km apart.
   A plane flies from Geneva to Hamburg.
   The flight takes 2 hours 20 minutes.
   Calculate the average speed in kilometres per hour. [2]
   **0580/42/O/N/18 Q8(a)**

4. Priyantha completes a 10 km run in 55 minutes 20 seconds.
   Calculate Priyantha's average speed in km/h.
   **0580/23/O/N/10 Q14)**

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5. The ship takes 2 hours and 15 minutes to sail the 74 km from P to Q.
   Calculate the average speed in knots. [1 knot = 1.85 km/h] [3]
   **0580/42/O/N/14 Q8)(d)**

6. (a) Amol drives his truck at an average speed of 50km/h. He leaves at 0700 and arrives at 1115. Calculate the distance he drives [2]
   (b) Priya drives her van a distance of 54km. She leaves at 1055 and arrives at 1238.
   Calculate her average speed. [2]
   **0580/42/F/M/19 Q1)**

7. A train leaves Barcelona at 21 28 and takes 10 hours and 33 minutes to reach Paris.
   (a) Calculate the time the next day when the train arrives in Paris. [1]
   (b) The distance from Barcelona to Paris is 827 km.
   Calculate the average speed of the train in kilometres per hour.[3]
   **0580/21/M/J/11 Q12)**

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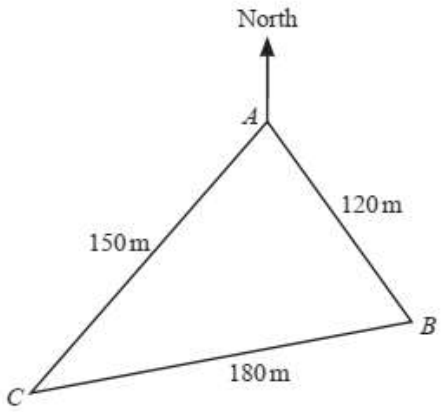
8. The distance between Prague and Vienna is 254 kilometres.
   The local time in Prague is the same as the local time in Vienna.
   A train leaves Prague at 15 20 and arrives in Vienna at 19 50 the same day.
   Calculate the average speed of the train. [2]
   **0580/22/M/J/19 Q5)**

9. Asif cycles a distance of 105km.
   On the first part of his journey he cycles 60km in 2 hours 24 minutes.
   On the second part of his journey he cycles 45km at 20km/h.
   Find his average speed for the whole journey [4]
   **0580/43/O/N/19 Q1(d)**

10. Fritz drives a distance of 381km in 2 hours and 18 minutes.
    He then drives 75km at a constant speed of 30km/h.
    Calculate his average speed for the whole journey. [4]
    **0580/22/F/M/15 Q19)**

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11. The diagram shows a triangular field, ABC, on horizontal ground.




Olav runs from A to B at a constant speed of 4m/s and then from B to C at a constant speed of 3m/s.
He then runs at a constant speed
from C to A. His average speed for the whole journey is 3.6m/s. Calculate his speed when he runs from C to A.
[3]

**0580/41/O/N/19 Q5)**

12. Every Monday, Sima travels by car to the library.
The distance is 20km and the journey takes 23 minutes.
(i) Calculate the average speed for the journey in kilometres per hour. [2]
(ii) One Monday, she is delayed and her average speed is reduced to 32km/h.
Calculate the percentage increase in the journey time.
[5]

**0580/41/O/N/17 Q1)(c)**

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13. (a) One day, Maria took 27 minutes to walk 1.8km to school.
She left home at 0748.
(i) Write down the time Maria arrived at school. [1]
(ii) Show that Maria's average walking speed was 4km/h [2]
(b) Another day, Maria cycled the 1.8km to school at an average speed of 15km/h.
(i) Calculate the percentage **increase** that 15km/h is on Maria's walking speed of 4km/h. [3]
(ii) Calculate the percentage **decrease** that Maria's cycling time is on her walking time of 27 minutes.[3]
(iii) After school, Maria cycled to her friend's home. This took 9 minutes, which was 36% of the time Maria takes to walk to her friend's home.
Calculate the time Maria takes to walk to her friend's home [2]
**0580/41/M/J/13 Q1)**

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14. Car A and car B take part in a race around a circular track.
One lap of the track measures 7.6km.
Car A takes 2 minutes and 40 seconds to complete each lap of the track.
Car B takes 2 minutes and 25 seconds to complete each lap of the track.
Both cars travel at a constant speed.
(a) Calculate the speed of car A.
Give your answer in kilometres per hour. [3]
(b) Both cars start the race from the same position, S, **at the same time**.
(i) Find the time taken when both car A and car B are next at position S at the same time.
Give your answer in minutes and seconds. [4]
(ii) Find the distance that car A has travelled at this time [2]
**0580/42/O/N/19 Q9)**

15. A car of length 4.3 m is travelling at 105km/h. It passes over a bridge of length 36m.
Calculate the time, in seconds, it takes to pass over the bridge **completely**. [3]
**0580/21/M/J/16 Q18)**

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16. (i) Show that 126km/h is the same speed as 35m/s. [1]

(ii) The train has a total length of 220m.
At 09 30, the train crossed a bridge of length 1400m.
Calculate the time, in seconds, that the train took to completely cross the bridge. [3]

**0580/43/O/N/17 Q3(b) (ii)**

17. (i) The distance from London to Ashford is 90 km.
A train takes 36 minutes to reach from London to Ashford
Work out the average speed, in km/h, of the train between London and Ashford. [3]

(ii) During the journey, the train takes 35 seconds to completely cross a bridge.
The average speed of the train during this crossing is 90km/h.
The length of the train is 95 metres.
Calculate the length, in metres, of this bridge. [4]

**0580/43/M/J/19 Q1)**

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18. A train of length 105m takes 11 seconds to pass completely through a station of length 225m. Calculate the speed of the train in km/h.
**0580/22/M/J/20 Q17)**

**Answers**

| | | |
|---|---|---|
| Q1) 6.15 | Q7) (a)8:01 am or 0801(b) 78.4 | Q13) (a)(i) [0]8 15 (b) (i) 275 (ii) 73.3 (iii) 25 |
| Q2) 154 days 4 hours | Q8) 56.4 | Q14) (a)171 (b) (i) 77 [min] 20 [s] (ii) 220.4 |
| Q3) 370 | Q9) 22.6 | Q15) 1.38 |
| Q4) 10.8 | Q10) 95 | Q16) 46.3 |
| Q5) 17.8 | Q11) (a) 4.29 | Q17) (a)(i)150 km/h (ii)780 |
| Q6) (a)212.5 (b) 31.5 | Q12) (i) 52.2 (ii) 63.0 | Q18) 108 |

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