Speed, Distance, Time Worksheet.

Use * m/s, km/h, or mph.

Calculate Speed

$$\bar{v} = \frac{d}{t}$$

1. A car travels a distance of 540km in 6 hours. Calculate the speed of the car.
2. John is a runner. He runs the 100m sprint in 20.0 s. Calculate the John's speed.
3. Lauren walks 400 m in 125 s . Calculate Lauren's average speed.
4. A mouse runs a distance of 2.0 metres in 16 seconds. Calculate the speed of the mouse.
5. A rocket travels, a distance of 576 m in 6 s, calculate the average speed of the rocket
6. A cyclist travels 20 km in 4 hrs. Calculate the speed of the cyclist.
7. At the equator, the earth spins a distance of 25,992miles every day. Calculate the average speed of the Earth in mph.
8. The distance between two cities is 144 km, it takes me 3 hours to travel between these cities, determine my average speed.

Calculate Distance

$$d = \bar{v} \times t$$

9. A whale swims at a constant speed of 8.0 m/s for 17 s. Calculate the distance travelled by the whale.
10. A girl cycles for 30s at a speed of 4 m/s. Calculate the distance she travels.
11. Jim travelled at a speed of 18.0 m/s for 2.0 s. Calculate the distance Jim travels.

Calculate Time

$$t = \frac{d}{\bar{v}}$$

12. A vehicle drives a distance of 26000 m at a speed of 65m/s, calculate the time taken for this journey.
13. A train travels at a speed of 16 m/s and travel a distance of 3200 m, calculate the time it takes the train to complete this journey.
14. Calculate the time it takes to travel a distance of 672 km at a speed of 96 km/h.
15. A beetle travels at a speed of 0.09 m/s, it travels a distance of 1.08 m before it is caught in a jar. Calculate the time taken for the beetle to run.
16. Carlisle is a distance of 35 miles away from Lockerbie. If I travelled at a constant speed of 117 mph. calculate the time taken for this journey.

Dance Questions- Questions with a twist!

17. Susie estimated that she can run for hours at a steady rate of 8.0 mph. She enters a marathon, a distance of 26 miles. Calculate the time it takes her to complete the race. Give answer in hours/minutes.
18. The earth takes one year to go round the sun. The distance travelled is 584 million miles if there are 365 days in a year,
    a. Calculate the speed the Earth travels at in miles per day.
    b. Calculate the speed of the Earth in miles per hour.
19. Neil travelled 36 km at a speed of 8 km/h. Grant travelled 48km at a speed of 10 km/h
    a. Determine whose journey took the shortest time.
    b. Determine the time difference in minutes
20. Mr Dunn drives 64.8 km from work at a speed of 48 km/h. Mrs Dunn drives 81.2 km from work at a speed of 58 km/h. They both leave work at the same time.
    a. Calculate the time taken for each person to travel home.
    b. State which person arrives home first.
    c. Calculate the time between the first and second person getting home.
21. Marc was told his dinner would be ready at 18:00. He left his house at 12:00 and travelled in his car at an average speed of 45 mph to his mum's house 300 miles away.
    a. Calculate the time taken for Marc to travel this distance.
    b. Did Marc make it home in time for dinner? *You must justify your answer by showing all of your working*
22. Callum writes down his jog times for each day.

    Mon – 15 min

    Tue – 10 min

    Wed – 12 min

    Thu – 5 min

    Fri – No jog.

    a. State on which day did he jogs the furthest.
    b. He jogs at a constant speed of 9km/h. Calculate the distance he jogs each day.

Speed, Distance, Time Answers.

1) 90 km/h
2) 5 m/s
3) 3.2 m/s
4) 0.13 m/s
5) 64 m/s
6) 5 km/h
7) 1083mph
8) 48km/h
9) 136m
10) 120 m
11) 36 m
12) 400 s
13) 200 s
14) 7 hours
15) 12 s
16) 18 mins, 0.3 hours
17) 3 hours 15 mins
18) 1,600,000 miles per day. Which is 67 000, mph
19) a) Neil was quickest at 4.5 hours. Grant was 4.8 hours. b) 18 mins
20) a) Mr Dunn.takes 1.35 hours. Mrs Dunn takes 1.4 hours b) Mr Dunn arrives first c) by 3 minutes
21) No, he arrived at 18:40
22)
    a. Mon – 2.25 km Tue – 1.5 km Wed – 1.8 km Thu – 0.75 km.
    b. He travelled furthest on Monday

Speed, Distance, Time Answers.

1) 90 km/h

$$\bar{v} = \frac{d}{t} = \frac{540}{6} = 90\ kmh^{-1}$$

2) 5 m/s

$$\bar{v} = \frac{d}{t} = \frac{100}{20} = 5\ ms^{-1}$$

3) 3.2 m/s

$$\bar{v} = \frac{d}{t} = \frac{400}{125} = 3.2\ ms^{-1}$$

4) 0.13 m/s

$$\bar{v} = \frac{d}{t} = \frac{2.0}{16} = 0.125\ \cong 0.13\ ms^{-1}$$

5) 64 m/s

$$\bar{v} = \frac{d}{t} = \frac{576}{6} = 64\ ms^{-1}$$

6) 5 km/h

$$\bar{v} = \frac{d}{t} = \frac{20}{4} = 5\ kmh^{-1}$$

7) 1083mph

There are 24 hours in a day

$$\bar{v} = \frac{d}{t} = \frac{25992}{24} = 1083\ mph$$

8) 48km/h

$$\bar{v} = \frac{d}{t} = \frac{144}{3} = 48\ kmh^{-1}$$

9) 136m

$$\bar{v} = \frac{d}{t}$$

$$8.0 = \frac{d}{17}$$

$$d = 8.0 \times 17 = 136\ m$$

10) 120 m

$$\bar{v} = \frac{d}{t}$$

$$4.0 = \frac{d}{30}$$

$$d = 4.0 \times 30 = 120\ m$$

11) 36 m

$$\bar{v} = \frac{d}{t}$$

$$18.0 = \frac{d}{2.0}$$

$$d = 18.0 \times 2.0 = 36\,m$$

12) 400 s

$$\bar{v} = \frac{d}{t}$$

$$65 = \frac{26000}{t}$$

$$t = \frac{26000}{65} = 400\,s = 6\,\text{min}\,40s$$

13) 200 s

$$\bar{v} = \frac{d}{t}$$

$$16 = \frac{3200}{t}$$

$$t = \frac{3200}{16} = 200\,s = 3\,\text{min}\,20s$$

14) 7 hours

$$\bar{v} = \frac{d}{t}$$

$$96 = \frac{672}{t}$$

$$t = \frac{672}{96} = 7\,hours$$

15) 12 s

$$\bar{v} = \frac{d}{t}$$

$$0.09 = \frac{1.08}{t}$$

$$t = \frac{1.08}{0.09} = 12\,s$$

16) 18 mins, 0.3 hours

$$\bar{v} = \frac{d}{t}$$

$$117 = \frac{35}{t}$$

$$t = \frac{35}{117} = 0.3\,h = 18\,mins$$

17) 3 hours 15 mins

$$\bar{v} = \frac{d}{t}$$

$$8 = \frac{26}{t}$$

$$t = \frac{26}{8} = 3.25\ h = 3\ hours\ 15\ mins$$

18) 1,600,000 miles per day. Which is 67 000, mph

$$\bar{v} = \frac{d}{t} = \frac{584\,000\,000}{365} = 1.6\ million\ miles\ per\ day$$

$$\bar{v} = \frac{d}{t} = \frac{584\,000\,000}{(365 \times 24)} = 67\ thousand\ mph$$

19) a) Neil was quickest at 4.5 hours. Grant was 4.8 hours. b) 18 mins

$\bar{v} = \frac{d}{t}$ $8 = \frac{36}{t}$ $t = \frac{36}{8} = 4.5\ h = 4\ hours\ 30\ mins$	$\bar{v} = \frac{d}{t}$ $10 = \frac{48}{t}$ $t = \frac{48}{10} = 4.8\ h = 4\ hours\ 48\ mins$
4 hours 48 mins- 4 hours 30 mins -= 18 mins, or 4.8-4.5 = 0.3 hours, which is 18 mins	

20) a) Mr Dunn.takes 1.35 hours. Mrs Dunn takes 1.4 hours b) Mr Dunn arrives first c) by 3 minutes

$\bar{v} = \frac{d}{t}$ $48 = \frac{64.8}{t}$ $t = \frac{64.8}{48} = 1.35\ h = 1\ hours\ 21\ mins$	$\bar{v} = \frac{d}{t}$ $58 = \frac{81.2}{t}$ $t = \frac{81.2}{58} = 1.4\ h = 1\ hours\ 24\ mins$
Mr Dunn arrives first as he taks less time	
1 hours 24 mins- 1 hours 21 mins -= 3 mins, or 1.4-1.35 = 0.05 hours, which is 3 mins	

21) No, he arrived at 18:40

$\bar{v} = \frac{d}{t}$ $45 = \frac{300}{t}$ $t = \frac{300}{45} = 6.6\ h = 6\ hours\ 40\ mins$	*If* Marc left at 12:00 and he takes 6 hours and 40 mins he will arrive at 18:40 or 6:40 pm. He therefore is late for dinner

22)

a. Mon – 2.25 km Tue – 1.5 km Wed – 1.8 km Thu – 0.75 km.
b. He travelled furthest on Monday

Monday	Tuesday	Wednesday	Thursday
15 mins =0.25 h	10 mins =0.1666666 h	12 mins =0.2 h	5 mins =0.083 h
As he jogs at 9 km/h at all times! He travels furthest on Monday			
$\bar{v} = \frac{d}{t}$ $9 = \frac{d}{0.25}$ $d = 9 \times 0.25$ $d = 2.25\ km$	$\bar{v} = \frac{d}{t}$ $9 = \frac{d}{0.1666666}$ $d = 9 \times 0.16666666$ $d = 1.5\ km$	$\bar{v} = \frac{d}{t}$ $9 = \frac{d}{0.2}$ $d = 9 \times 0.2$ $d = 1.8\ km$	$\bar{v} = \frac{d}{t}$ $9 = \frac{d}{0.083}$ $d = 9 \times 0.083$ $d = 0.75\ km$