

# Practice Book *UNIT 18 Speed, Distance and Time* Answers

---

## 18.1 Speed

1. 40 mph
2. 42 mph
3. 4 m/hr
4. (a) 43 mph (b) 56 mph (c) 37.5 mph (d) 48 mph (e) 35 mph
5. 20 km/hr
6. 8 mph
7.
 

	Julie	Debbie
(a)	25 wpm	20 wpm
(b)	1500 wphr	1200 wphr
8. (a) Fatima 60 mph  
(b) Emma 30 mph  
(c) Andy 40 mph
9. (a) 70 mph (b) 80 mph (c) 39 mph
10. 63 km/hr

## 18.2 Calculating Speed, Distance and Time

1. (a) 60 miles (b) 480 miles (c) 38 miles (d) 63 miles  
(e) 250 miles (f) 16.5 miles (g) 45 miles (h) 67.5 miles
2. (a) 3 hrs (b) 6 hrs (c) 4 hrs (d)  $5\frac{1}{2}$  hrs  
(e)  $1\frac{1}{2}$  hrs (f) 12 hrs (g)  $6\frac{1}{2}$  hrs (h)  $5\frac{1}{2}$  hrs
3. (a) 60 mph (b) 1 mile per minute 82 mins
4. (a)  $1\frac{1}{2}$  hrs (b)  $\frac{1}{2}$  hr
5. (a) 200 m (b) 720 m (c) 14 400 m or 14.4 km (d) 36 km
6. (a) (i) 35 s (ii) 400 s = 3 min 40 secs (iii)  $750\text{ s} = 12\frac{1}{2}\text{ mins}$   
(b) (i) 24 m (ii) 420 m (iii) 28.8 km

**18.2****Answers**

---

7. (a) 8 hrs (b) 8.75 m (c) 24 mins (d) 62.5 cm
8. (a) Clare (Laura travels 132 miles) (b) Clare (36 mph) (c) 108 miles
9. (a) 250 miles (b) 50 mph
10. (a) 235 miles (b) 5 hrs (c) 47 mph

**18.3 Problems With Mixed Units**

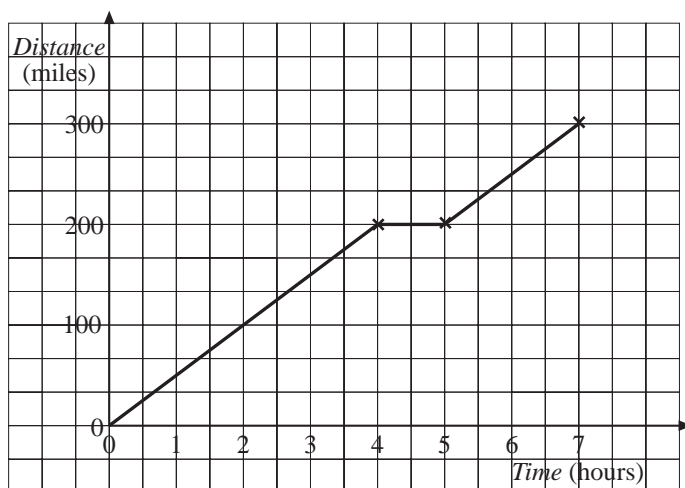
1. (a) 1.67 hrs (b) 3.17 hrs (c) 1.1 hrs (d) 2.3 hrs  
(e) 3.08 hrs (f) 6.03 hrs (g) 1.12 hrs (h) 2.38 hrs
2. (a) 1 hr 15 mins (b) 1 hr 12 mins (c) 3 hrs 42 mins  
(d) 4 hrs 24 mins (e) 1 hr 27 mins (f) 3 hrs 39 mins
3. 72 mph
4. 48 mph
5. (a) 96 km/h (b) 154.8 km/h (c) 237.6 km/h (d) 134.4 km/h
6. (a) 36 mph (b) 51.25 mph (c) 30 mph (d) 15.75 mph
7. (a) 73.64 km/h (b) 20.45 m/s (c) 46 mph
8. (a) 55 mph (b) 377.67 miles
9. (a)  $12\frac{1}{2}$  mins (b) 20 mins 50 sec or 20.83 mins (c) 2.22 hours
10. (a)  $2\frac{6}{7}$  hrs  $\approx$  2 hrs 51 mins (b) 1 hr 20 min (c) 54 min  
(answers given to the nearest minute)

# Answers

## 18.4 Distance-Time Graphs

1. (a)  $150 \text{ secs} = 2\frac{1}{2} \text{ mins}$  (b)  $450 \text{ m}$  (c)  $180 \text{ m/min} = 3 \text{ m/s}$   
 (d)  $90 \text{ secs} = 1\frac{1}{2} \text{ min}$  (e)  $3.75 \text{ m/s}$

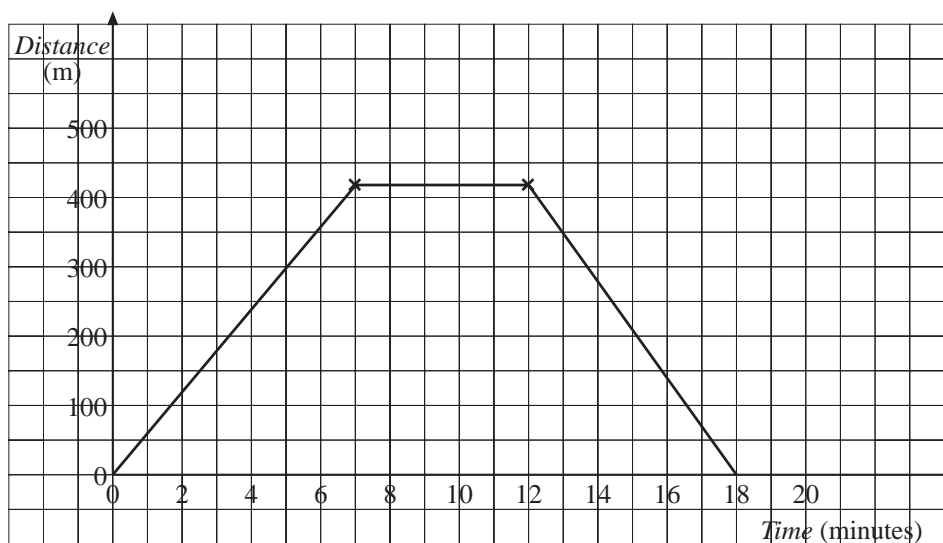
2.



Vera's Journey

3. (a) Constant speed  $100 \text{ km/h}$  for  $3 \text{ hrs}$   
 (b) Rest for  $\frac{1}{2} \text{ hr}$   
 (c) Constant speed  $100 \text{ km/h}$  for  $1 \text{ hr}$   
 (d) Rest for  $\frac{1}{2} \text{ hr}$   
 (e) Constant speed  $37.5 \text{ km/h}$  for  $4 \text{ hrs}$ .

4. (a)

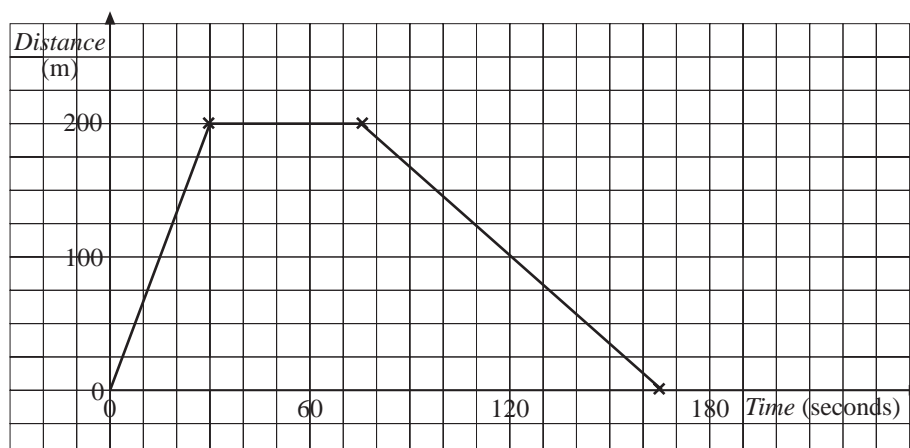


- (b) Ray walks to the shop at  $60 \text{ m/minute}$  and walks home at  $70 \text{ m/minute}$ .  
 (Answers to 2 d.p.)

## 18.4

## Answers

5. (a)



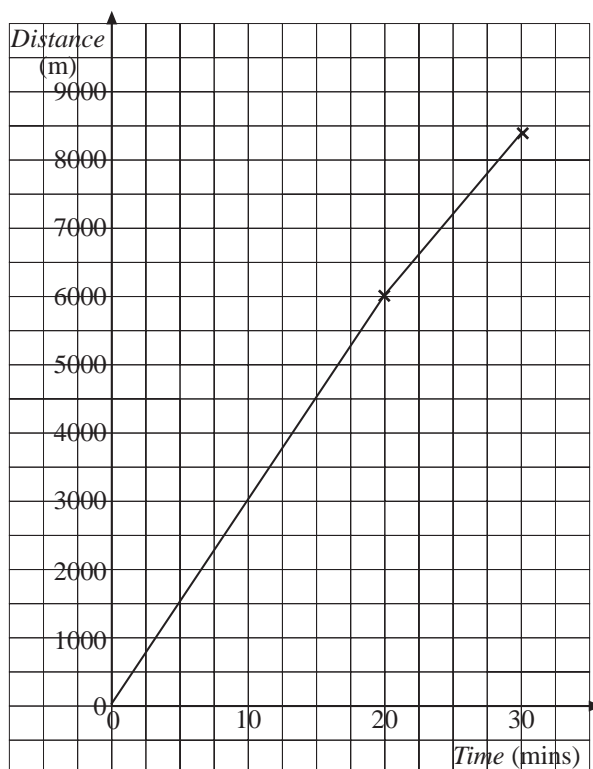
(b) Runs at  $\frac{200}{30} = 6\frac{2}{3}$  m/s ( $\approx 6.67$  m/s)      (c) Walks at  $\frac{200}{90} = 2\frac{2}{9}$  m/s ( $\approx 2.22$  m/s)

6. (a) 1500 m      (b) 15 mins      (c)  $1\frac{2}{3}$  m/s  $\approx 1.67$  m/s (2 d.p.)

(d) 35 mins      (e)  $1\frac{1}{4}$  m/s = 1.25 m/s

7. (a) 8400 m

(b)



8. (a) James      constant speed 100 m/min

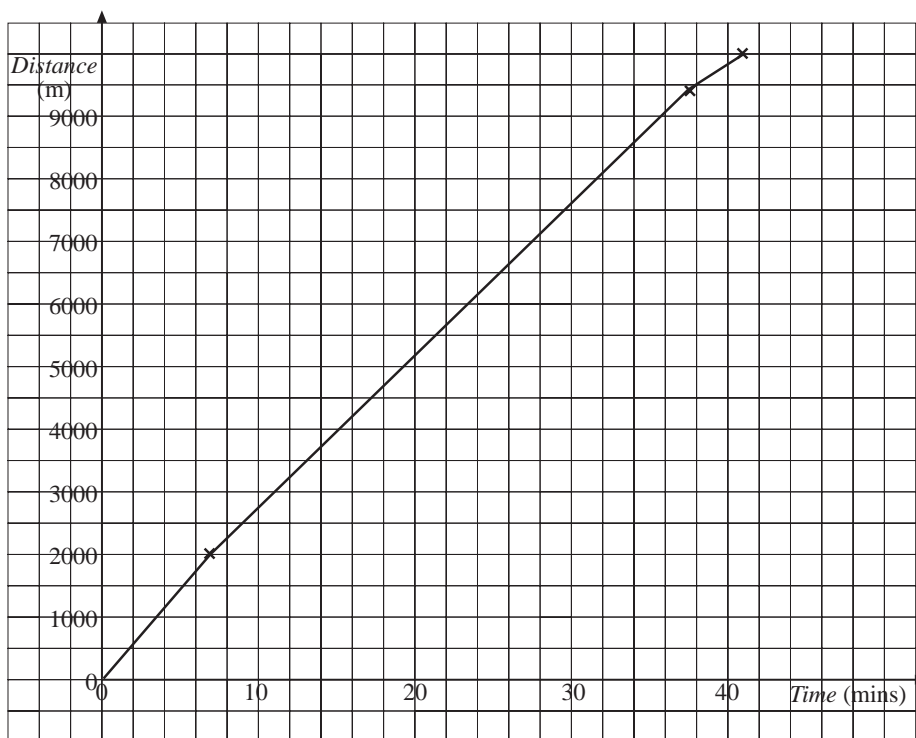
(b) Rachel      200 m/min for 5 mins  
                      60 m/min for next 25 mins  
                      100 m/min for next 5 mins

## 18.4

## Answers

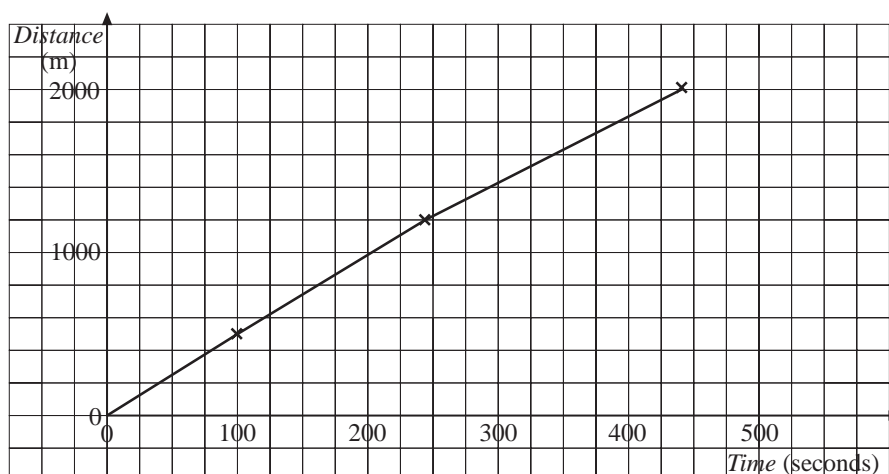
- (c) 17.5 mins into race at 1750 m  
 (d) 100 m/min  
 (e) 200 m/min; 60 m/min; 100m/min  
 (f) James

9. (a)



- (b) Time to complete race =  $39\frac{1}{6} \approx 39.17$  mins (2 d.p.)

10. (a)



- (b) 1200 m at 5 m/s  
 800 m at 4 m/s

## 18.4

## Answers

11. (a) Speed increasing from zero; then slowing down; stationary at destination.  
 (b) Speed increasing from zero; then slowing down until stationary; then increasing again on return and slowing to start position.  
 (c) Speed increasing from point away from starting position; back to start; speed rapidly increasing, back to original distance from start.  
 (d) Stationary; moving at increasing speed towards 'start'; then turn around and move at reasonably constant speed away from 'start'; turn round again move steadily to distance further away from 'start' than when journey began.

## 18.5 Other Compound Measures

1.	<i>No. of Goals Scored</i>	<i>No. of Matches Played</i>	<i>Goals per Match</i>
Ian	16	32	0.5
Ben	22	40	0.55
Sergio	9	20	0.45

- (a) Most goals/match = 0.55 (Ben)  
 (b) Least goals/match = 0.45 (Sergio)
2. (a) 0.6 (b) 0.01 (c) 0.9
3. (a) 2.25 (b) 1.5 (c) 11.25 (d) 90
4. (a) Africa = 2.4 p/gm China = 2.675 p/gm  
 (b) Africa = £1.20 p/gm China = £1.34 to nearest pence
5. First class = 0.4875 p/gm Second class = 0.3875 p/gm
6. (a) 80 p/km (b) 0.08 pence/m
7. (a) £1.98 (b) £2.76 (c) £4.71 (d) £9.39
8. (a) 93p (b) £8.56

9.	<i>Hours</i>	<i>Pay</i>	<i>Pay/Hour</i>
Dee	8	28.64	3.58
Nadina	12	43.44	3.62
Lisa	42	302.40	7.20
Mary	38	136.80	3.60
Clare	35	134.40	3.84

- (a) Most £7.20, Lisa (b) Least £3.60, Mary
10. (a) 0.2 litres/m<sup>2</sup> (b) 200 cm<sup>3</sup>/m<sup>2</sup> (c) 0.02 ml/cm<sup>2</sup>