**1** The average (mean) of 7 numbers is 29. One number is left out and the average increases to 32. What number is left out?

A 11    B 21    C 29    D 32

**2** Lindsay recorded the colours of cars that went past her house. The results are shown in the table.

| Colour | Number |
|--------|--------|
| Red | 16 |
| White | 32 |
| Blue | 21 |
| Silver | 12 |
| Other | 15 |

Based on these results, what is the probability that a car is silver?

A $\dfrac{1}{5}$    B $\dfrac{1}{6}$    C $\dfrac{1}{7}$    D $\dfrac{1}{8}$

**3** Each week, Liam's class do a test marked out of 100. Liam's average for the first six tests is 78. What must he score in the seventh test to increase his average to 80?

**4** The eye colour of 200 students was recorded and the results were shown in a sector graph.

What is the best approximation for the number of students whose eyes are brown?

A 50    B 65    C 80    D 95

**5** Corey spins this spinner 60 times.

Which table is most likely to show the results?

A
| Number spun | Number of spins |
|-------------|-----------------|
| 1 | 20 |
| 2 | 20 |
| 3 | 20 |

B
| Number spun | Number of spins |
|-------------|-----------------|
| 1 | 20 |
| 2 | 15 |
| 3 | 25 |

C
| Number spun | Number of spins |
|-------------|-----------------|
| 1 | 25 |
| 2 | 20 |
| 3 | 15 |

D
| Number spun | Number of spins |
|-------------|-----------------|
| 1 | 30 |
| 2 | 20 |
| 3 | 10 |

**6** The average (mean) age of 11 cricket players was 32. The 12th man was 20 years old. What was the average age of the 12 players?

A 26    B 29    C 31    D 32

**7**

Temperature at Toptown



Time of the day
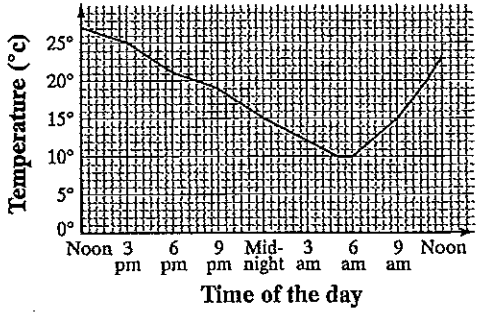
Over which of the time periods below did the temperature **change** the most?

A noon to midnight   B 3 pm to 3 am
C 6 pm to 6 am      D 9 pm to 9 am

**8** A man has been early or on time for work on 15 days and late on 30 days. Based on this information, what is the probability that he will be late?

A $\dfrac{1}{2}$    B $\dfrac{1}{3}$    C $\dfrac{2}{3}$    D $\dfrac{2}{5}$

**9** A few entries in this table are missing.

| | Driver | Passenger | Total |
|-------|--------|-----------|-------|
| Men | 79 | | 106 |
| Women | | | |
| Total | | 127 | |

How many women were passengers?

**10** The average (mean) age of male workers at a factory was 25 and the average age of female workers was 35. If there were 30 male and 20 female workers at the factory, what is the average age?

A 29    B 30    C 31    D 32

**11** Saskia has $100 in New Zealand dollars.

NZ to Aus Dollars

US to Aus Dollars
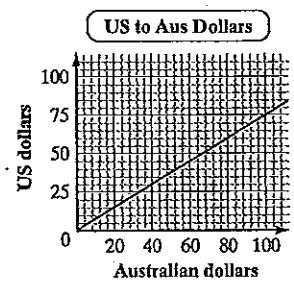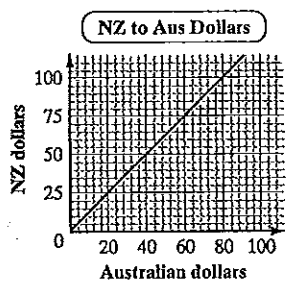


How much is this in US dollars?

US$ ____

Answers and explanations on pages 128–129

**1** The average of 7 numbers is 29.
Sum of the numbers = 29 × 7
$\qquad\qquad\qquad$ = 203
The average of 6 numbers is 32.
Sum of those numbers = 32 × 6
$\qquad\qquad\qquad$ = 192
Difference = 203 − 192
$\qquad\qquad$ = 11
The number left out must have been 11.

**2** Total number of cars
= 16 + 32 + 21 + 12 + 15
= 96
Probability of silver = $\dfrac{12}{96}$

$\qquad\qquad\qquad\quad$ = $\dfrac{1}{8}$

| Colour | Number |
|--------|--------|
| Red | 16 |
| White | 32 |
| Blue | 21 |
| Silver | 12 |
| Other | 15 |

**3** Total of first 6 marks = 6 × 78
$\qquad\qquad\qquad\qquad$ = 468
To have an average of 80 after 7 tests:
New total = 7 × 80
$\qquad\qquad$ = 560
Difference = 560 − 468
$\qquad\qquad$ = 92
Liam would need to score 92 in his
seventh test.

**4** The sector graph is divided into
12 equal parts.
5 of those parts represent students
with eyes that are brown.
Number of students with eyes that are brown
= $\dfrac{5}{12}$ × 200
= 83.333...
Of the choices the best approximation is 80.

**5** The spinner shows 1 three times, 2 twice and
3 once.
So in 6 spins you would expect to get
1 three times, 2 twice and 3 once.
In 60 spins you would expect to get
1 thirty times, 2 twenty times and 3 ten times.
The table in Option D is the most likely result.

**6** Total of the ages of 11 players
= 11 × 32
= 352
Total of the ages of 12 players
= 352 + 20
= 372
Average age of the 12 players
= 372 ÷ 12
= 31

**7** Consider each option.



**Temperature at Toptown**
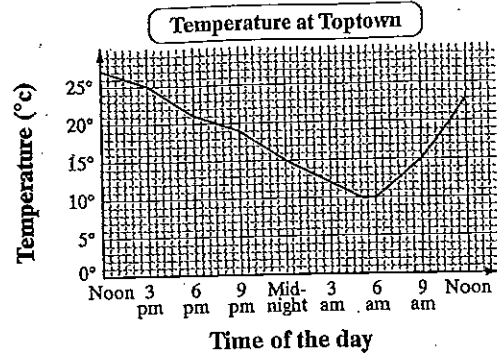
Between noon and midnight:
At noon the temperature was 27°.
At midnight it was 15°.
Difference = 27° − 15°
$\qquad\qquad$ = 12°
Between 3 pm and 3 am:
At 3 pm the temperature was 25°.
At 3 am it was 12°.
Difference = 25° − 12°
$\qquad\qquad$ = 13°
Between 6 pm and 6 am:
At 6 pm the temperature was 21°.
At 6 am it was 10°.
Difference = 21° − 10°
$\qquad\qquad$ = 11°
Between 9 pm and 9 am:
At 9 pm the temperature was 19°.
At 6 am it was 10°
At 9 am it was 15°.
Change = (19° − 10°) + (15° − 10°)
$\qquad\quad$ = 9° + 5°
$\qquad\quad$ = 14°
The temperature changed the most between
9 pm and 9 am.
[Note: The difference in temperature between
9 pm and 9 am was not the greatest but the
change in temperature over that time period was
the greatest.]

**8** He was late 30 out of 45 days.
Probability of being late = $\dfrac{30}{45}$

$\qquad\qquad\qquad\qquad\quad$ = $\dfrac{2}{3}$

**9** The number of men who were passengers
= 106 − 79
= 27
The total number of passengers is 127.
The number of women who were passengers
= 127 − 27
= 100

| | Driver | Passenger | Total |
|------|--------|-----------|-------|
| Men | 79 | 27 | 106 |
| Women | | 100 | |
| Total | | 127 | |

**10** Sum of ages of male workers

   $= 30 \times 25$

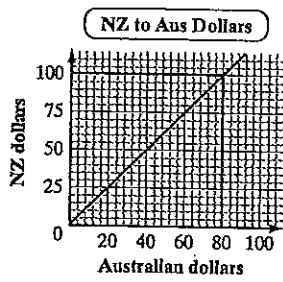   $= 750$

   Sum of ages of female workers

   $= 20 \times 35$

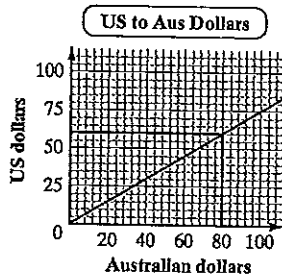   $= 700$

   Total of all ages $= 750 + 700$

   $= 1450$

   Total workers $= 30 + 20$

   $= 50$

   Average age $= 1450 \div 50$

   $= 29$

**11** NZ$100 = A$80



A$80 = US$60



Saskia would have US$60.