

## Answers

### 5: Data Handling and Probability

#### 5.1 Data handling

##### 1. Check point:

| Shoe size | Tally marks | Frequency |
|-----------|-------------|-----------|
| 28        | ///         | 3         |
| 30        | //////      | 6         |
| 32        | ////// //   | 13        |
| 38        | //          | 2         |
|           |             | <b>24</b> |
|           |             |           |

##### Stretch point:

| Height (cm) | Tally marks | Frequency |
|-------------|-------------|-----------|
| 176         | ### /       | 6         |
| 178         | ###         | 5         |
| 179         | ////        | 4         |
| 181         | ////        | 4         |
| 182         | ### ////    | 9         |
| 183         | //          | 2         |
|             |             | <b>30</b> |
|             |             |           |

##### 2. Check point:

| Number of tree seedlings | Tally marks | Frequency |
|--------------------------|-------------|-----------|
| 10 – 19                  | ### /       | 6         |
| 20 – 29                  | ### /       | 6         |
| 30 – 39                  | ////        | 4         |
| 40 – 49                  | ### /       | 6         |
| 50 – 59                  | ///         | 3         |
|                          |             | <b>25</b> |

##### Stretch point:

The lower class limit of the first class, the upper class limit of the eighth class and class widths may vary. But the number of classes must be 8.

| House Numbers | Tally marks | Frequency |
|---------------|-------------|-----------|
| 7 – 18        | /           | 1         |
| 19 – 30       | ///         | 3         |
| 31 – 42       | ### ### /   | 11        |
| 43 – 54       | ### //      | 7         |

|          |             |    |
|----------|-------------|----|
| 55 – 66  | ### ### //  | 12 |
| 67 – 78  | ### ### ### | 15 |
| 79 – 90  | ### ###     | 10 |
| 91 – 102 | /           | 1  |
|          |             | 60 |

### 3. Check point:

Scale: 1  represents 5 babies

Monday: 

Tuesday: 

Wednesday: 

Thursday: 

Friday: 

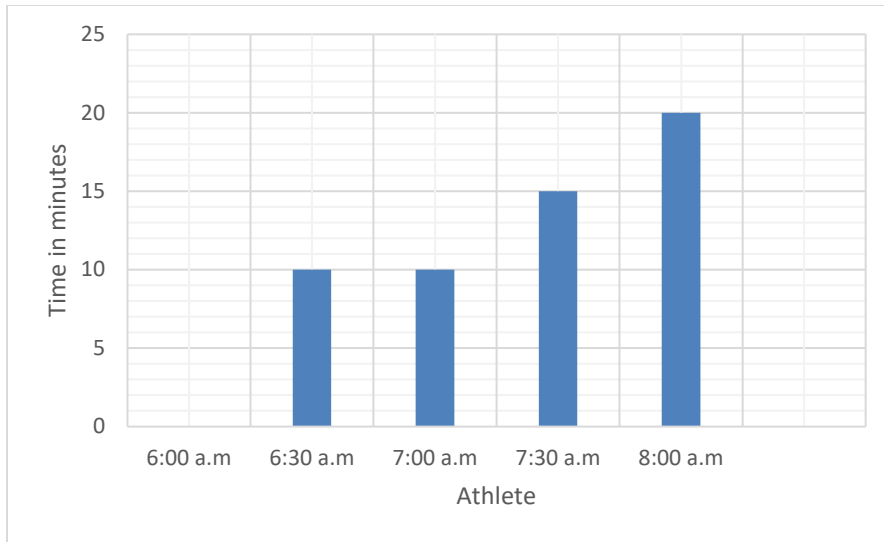
Saturday: 

### Stretch point:

(a) Scale: vertical axis: 1 cm represents 5 minutes

Horizontal axis: 1cm represents an athlete

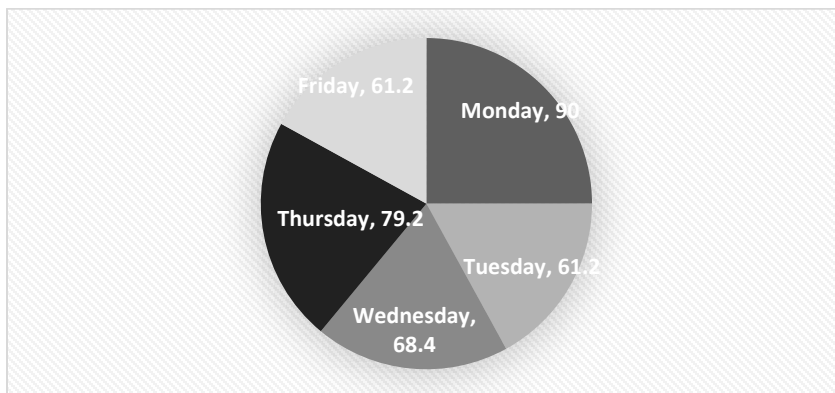
(b)



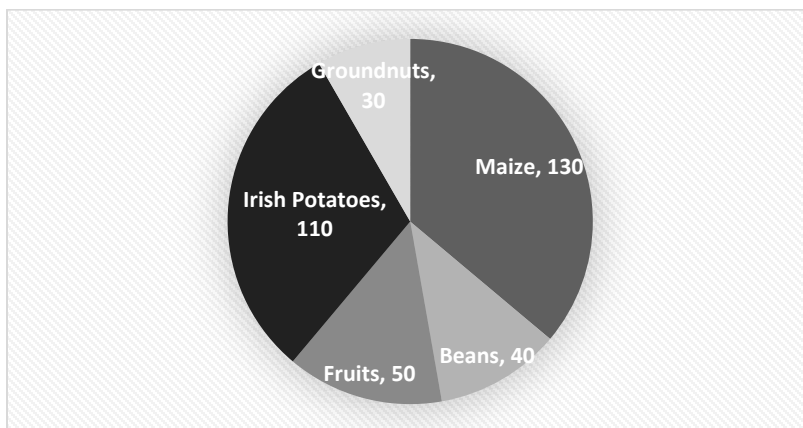
**4. Check point:** 300 bundles of flour

**Stretch point:** Thursday

**5. Check point:**



**Stretch point:**



**6. Check point:** KSh. 10 000 more

**Stretch point:** 2 hectares

**7. Check point:**

Vertical scale: 1 cm represents KSh. 150

Horizontal scale: 1 cm represents 1 pile of tomatoes

**Stretch point:**

Vertical scale: 1cm represents 40 kg

Horizontal scale: 1cm represents 10 minutes

**8. Check point:** 75 km/h

**Stretch point:** C and D

**9. Check point:** 6

**Stretch point:** 7

**10. Check point:** 20.3 marks

**Stretch point:** 77 kg

**11. Check point:** 9

**Stretch point:** 23.4

**12. Check point:** 14.8 hence 15 classes

**Stretch point:** 7.4 hence 8 classes

**13. Check point:** 70 – 79

**Stretch point:** Modal class is the class with the highest frequency

**14. Check point:** (a) 40

(b) Mean= 36

**Stretch point:** Mean = 540.92

**15. Check point:** 17.2 km

**Stretch point:** (a) 50 – 59

(b) 62.5 litres

(c) 63.5 litres

## 5.2 Probability

**1. Check point:**  $P(\text{odd}) = \frac{1}{2}$

**Stretch point:**  $P(\text{odd, greater than 4}) = \frac{1}{6}$

**2. Check point:**  $P(\text{blue}) = \frac{3}{10}$

**Stretch point:** 33.33

**3. Check point:**  $\frac{7}{10}$

**Stretch point:**  $P(\text{not yellow}) = \frac{7}{12}$

**4. Check point:**  $\frac{11}{20}$

**Stretch point:** T = 60 students

**5. Check point:** 0.51 or  $\frac{102}{500}$

**Stretch point:** 20 more heads

**6. Check point:** 300

**Stretch point:** 600 students

**7. Check point:**  $P(\text{king or queen}) = \frac{2}{13}$

**Stretch point:**

There are 4 kings in a deck of 52 cards.  $P(\text{king}) = \frac{4}{52}$

There are 26 red cards (hearts and diamonds).  $P(\text{red}) = \frac{26}{52}$

There are 2 red kings (King of Hearts and King of Diamonds).  $P = \frac{2}{52}$

$$\begin{aligned} P(\text{king or red}) &= \frac{4}{52} + \frac{26}{52} - \frac{2}{52} \\ &= \frac{7}{13} \end{aligned}$$

They are not mutually exclusive because some cards are both kings and red cards, namely king of hearts and king of diamonds.

**8. Check point:**  $\frac{1}{2}$ , independent events

**Stretch point:** Die is fair

**9. Check point:**  $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

**Stretch point:**

There are 4 kings in a deck of 52 cards.  $P(\text{spade}) = \frac{4}{52}$

There are 13 spades in a deck of 52 cards.  $P(\text{spade}) = \frac{13}{52}$

There is exactly one card that is both a king and a spade, namely the King of Spades.

$$P(\text{king and spade}) = \frac{1}{52}.$$

$$\begin{aligned} P(\text{king or spade}) &= \frac{4}{52} + \frac{13}{52} - \frac{1}{52} \\ &= \frac{4}{13} \end{aligned}$$

They are not mutually exclusive because a spade and king overlap.

**10. Check point:**  $P(\text{both blue}) = \frac{3}{20}$

**Stretch point:**  $x = 5$

## End of Strand 5 Assessment

1.

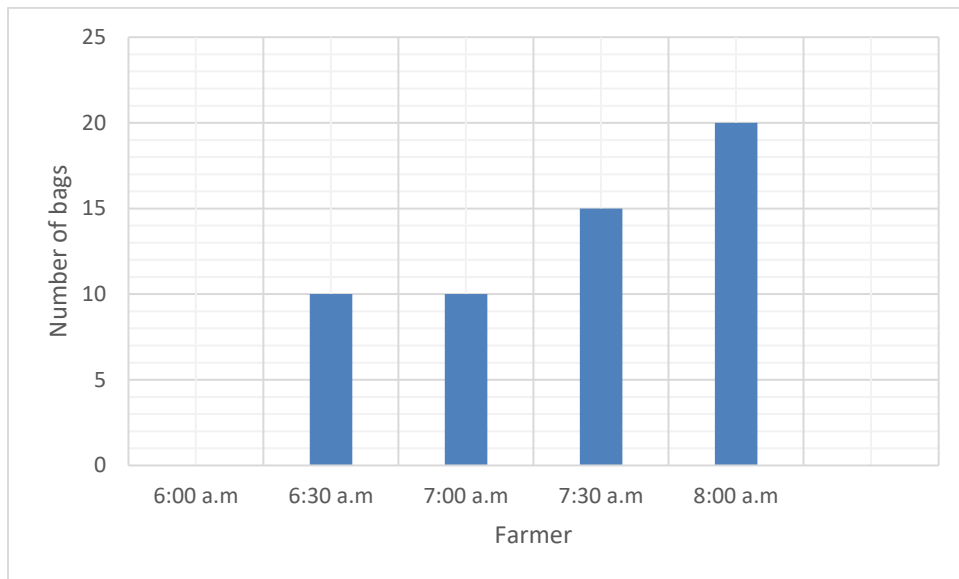
|           |    |     |    |     |    |    |
|-----------|----|-----|----|-----|----|----|
| Marks     | 30 | 34  | 36 | 38  | 44 | 58 |
| Tally     | /  | /// | // | /// | // | // |
| Frequency | 1  | 3   | 2  | 3   | 2  | 2  |

2. (a) 41 – 60

(b) 10

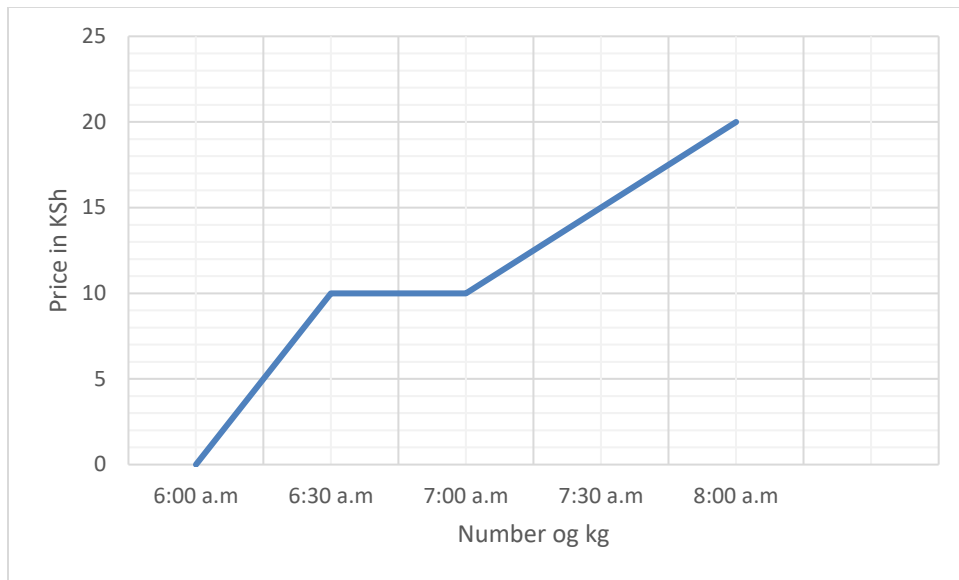
(c) 10

3.

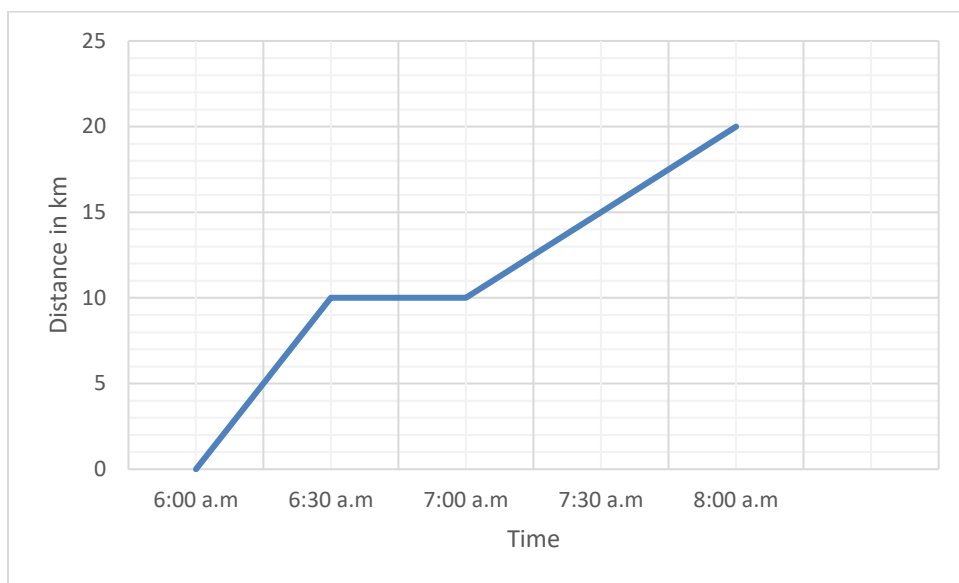


4. Days 4 and 5

5.



6.



7. 22.5 km/h

8.

