Upper and lower bounds of rounded numbers

Student name: _____ Score: _____

1. The population, P, of a small island was 6380, correct to the nearest 10.
   Complete the statement about the limits of P.

   Answer .... $\leqslant P <$ .... [2]

2. A square has sides of length d metres.
   This length is 120 metres, correct to the nearest 10 metres.

   (a) Complete the statement in the answer space.

   Answer(a) .... $\leqslant d <$ .... [1]

   (b) Calculate the difference between the largest and the smallest possible areas of the square.

   Answer(b) .... m^2 [2]

3. To raise money for charity, Jalaj walks 22 km, correct to the nearest kilometre, every day for 5 days.

   (a) Complete the statement in the answer space for the distance, d km, he walks in one day.

   Answer (a) .... $\leqslant d <$ .... [2]

   (b) He raises \$1.60 for every kilometre that he walks.
   Calculate the least amount of money that he raises at the end of the 5 days.

   Answer (b) \$ .... [1]

4. The distance between Singapore and Sydney is 6300 km correct to the nearest 100 km.
   A businessman travelled from Singapore to Sydney and then back to Singapore.
   He did this six times in a year.
   Between what limits is the total distance he travelled?

   Answer .... km $\leqslant$ total distance travelled $<$ .... km [2]

5. Angharad sleeps for 8 hours each night, correct to the nearest 10 minutes.
   The total time she sleeps in the month of November (30 nights) is T hours.
   Between what limits does T lie?

   Answer .... $\leqslant T <$ .... [2]

6. Carmen spends 5 minutes, correct to the nearest minute, preparing one meal.
   She spends a total time of T minutes preparing 30 meals.
   Between what limits does T lie?

   Answer .... $\leqslant T <$ .... [2]

7. A rectangle has sides of length 6.1 cm and 8.1 cm correct to 1 decimal place.
   Complete the statement about the perimeter of the rectangle.

   Answer   .... cm ≤ perimeter < .... cm [3]

8. A rectangle has sides of length 6.1 cm and 8.1 cm correct to 1 decimal place.

   Calculate the upper bound for the area of the rectangle as accurately as possible.

   Answer   .... cm² [2]

9. In 2005 there were 9 million bicycles in Beijing, correct to the nearest million.
   The average distance travelled by each bicycle in one day was 6.5 km correct to one decimal place.
   Work out the upper bound for the **total** distance travelled by all the bicycles in one day.

   Answer   .... km [2]

Upper and lower bounds of rounded numbers

Student name: _____ ANSWERS _____ Score: _____

1. The population, P, of a small island was 6380, correct to the nearest 10.
Complete the statement about the limits of P.

Answer   ...6375... $\leqslant P <$ ...6385...   [2]

2. A square has sides of length d metres.
This length is 120 metres, correct to the nearest 10 metres.

(a) Complete the statement in the answer space.

Answer(a) ...115... $\leqslant d <$ ...125...   [1]

(b) Calculate the difference between the largest and the smallest possible areas of the square.

Answer(b) ...2400... m^2 [2]

3. To raise money for charity, Jalaj walks 22 km, correct to the nearest kilometre, every day for 5 days.

(a) Complete the statement in the answer space for the distance, d km, he walks in one day.

Answer (a) ...21.5... $\leqslant d <$ ...22.5...   [2]

(b) He raises $1.60 for every kilometre that he walks.
Calculate the least amount of money that he raises at the end of the 5 days.

Answer (b) $ ...172...   [1]

4. The distance between Singapore and Sydney is 6300 km correct to the nearest 100 km.
A businessman travelled from Singapore to Sydney and then back to Singapore.
He did this six times in a year.
Between what limits is the total distance he travelled?

Answer   ...75 000... km $\leqslant$ total distance travelled $<$ ...76 200... km [2]

5. Angharad sleeps for 8 hours each night, correct to the nearest 10 minutes.
The total time she sleeps in the month of November (30 nights) is T hours.
Between what limits does T lie?

Answer ...237.5... $\leqslant T <$ ...242.5...   [2]

6. Carmen spends 5 minutes, correct to the nearest minute, preparing one meal.
She spends a total time of T minutes preparing 30 meals.
Between what limits does T lie?

Answer   ...135... $\leqslant T <$ ...165...   [2]

7. A rectangle has sides of length 6.1 cm and 8.1 cm correct to 1 decimal place.
   Complete the statement about the perimeter of the rectangle.

   Answer   28.2   cm ⩽ perimeter <   28.6   cm [3]

8. A rectangle has sides of length 6.1 cm and 8.1 cm correct to 1 decimal place.

   Calculate the upper bound for the area of the rectangle as accurately as possible.

   Answer   50.1225   cm² [2]

9. In 2005 there were 9 million bicycles in Beijing, correct to the nearest million.
   The average distance travelled by each bicycle in one day was 6.5 km correct to one decimal place.
   Work out the upper bound for the **total** distance travelled by all the bicycles in one day.

   Answer   62 225 000   km [2]