1. Estimate the value of

$$\frac{4.34 \times 19.2}{11.2} \approx \frac{4 \times 20}{10} = \frac{80}{10} = 8$$

.... [2]

2. Paul organised an event for a charity.

   Each ticket for the event cost £19.95

   Paul sold 395 tickets.

   Paul paid costs of £6000

   He gave all money left to the charity.

   SALES (APPX)

   $20 \times 400 = £8000$

   COSTS

   $£6000$

   (a) Work out an estimate for the amount of money Paul gave to the charity.

   Money left = 8000 - 6000

   £....2000.. [3]

   (b) Is your answer to (a) an underestimate or an overestimate?

   Give a reason for your answer.   Over estimate as cost
   of tickets and number of tickets were both rounded
   up.

   [1]

3. A cinema has

   37 rows of seats

   23 seats in each row.

   Adult tickets are £8 each.

   Child tickets are £6 each

   The cinema has sold tickets for every seat.

   The manager estimates that £6400 was raised from these tickets.

   200 child tickets were sold.

200 child tickets sold.

Revenue from child tickets $8 \times 200 = £1600$

Revenue from Adult tickets $£6400 - £1600 = £4800$

Number of Adult tickets Sold $= \dfrac{4800}{8} = 600$ tickets

Exact Numbers: Seats

$$\begin{array}{r} 37 \\ \times 23 \\ \hline 111 \\ 74 \\ \hline 851 \end{array}$$

Adult tickets (Exact)

$851 - 200 = 651$ [6]

Manager sold 651 Adult tickets, raising more money than estimated.

4. There are 1200 students at a school.

   Kate is helping to organise a party.

   She is going to order pizza.

   Kate takes a sample of 60 of the students at the school.

   She asks each student to tell her one type of pizza they want.

   The table shows information about her results.

Pizza	Number of students
ham	20
salami	15
vegetarian	8
margarita	17

   Work out how much ham pizza Kate should order.

   Write down any assumption you make and explain how this could affect your answer.

   HAM Pizza

   $\dfrac{20}{60} \times 1200 = 400$

   The proportion that want a particular type of Pizza in the sample is the same as that of the population.

   Actual proportions may differ.

   [3]

5. Estimate the answer to 51× 3·9.

   $\approx 50 \times 4 \approx 200$

   [2]

6. Shari was asked to buy the following items from her local shop.

Item	Price	Appx Prices
Chicken curry	£2.97	£3.00
Pizza	£3.04	£3.00
Washing powder	£6.09	£6.00
Butter	£1.47	£1.00
Bread	89 pence	£0.90

Total £13.90

The shopkeeper tells Shari that the total cost is £102.23.

Shari does not think that this is correct.

(a) Show clearly how Shari could approximate each of these prices to convince the shopkeeper that his total is not correct.

[3]

(b) What mistake do you think the shopkeeper made?

Shari added 89p as £89 instead of £0.89. [1]

7. A unit of gas costs 4.2 pence.

On average Ria uses 50.1 units of gas a week.
She pays for the gas she uses in 13 weeks.

(a) Work out an estimate for the amount Ria pays.

Units used ≈ 50 × 10 = 500 units

Cost of 500 units = 500 × 4p

= 2000p

= £20.00 .... [3]

(b) Is your estimate to part (a) an underestimate or an overestimate?

Under estimate as 50.1 × 13 > 500 and 4.2p was also rounded down

Give a reason for your answer.

An underestimate as $50.1 \times 13 > 500$ and 4.2p was also rounded down to 4p [1]

8. Jayne writes down the following

$$3.4 \times 5.3 = 180.2$$

Without doing the exact calculation, explain why Jayne's answer cannot be correct.

$$4 \times 6 = 24$$ [1]

So 3.4×5.3 cannot be greater than 24, Let alone 180.2