**1** Write an inequality for each situation, saying what your letter stands for.

(a) A parcel weighs no more than $25$ kg (1)

(b) A lorry is carrying over $3$ tonnes (1)

(c) There were at least $200$ people at the meeting (1)

(d) The journey took under two hours (1)

(e) A saving account must never fall below zero (1)

**(8 marks)**

**2** $n$ is a whole number.

(a) List the whole numbers that satisfy both $n \geq 4$ and $n < 9$ (2)

(b) List the whole numbers that satisfy both $n > -3$ and $n \leq 1$ (2)

(c) How many whole numbers satisfy both $n > 0$ and $n < 1$? Explain your answer. (2)

**(7 marks)**

**3** A shop offers free delivery on orders over $100{,}000$ shillings. A second shop offers free delivery on orders of $100{,}000$ shillings or more.

(a) Write an inequality for the first shop (1)

(b) Write an inequality for the second shop (1)

(c) A customer spends exactly $100{,}000$ shillings. At which shop do they get free delivery? (2)

(d) Explain why the two shops' offers are different, even though they sound almost the same (2)

**(6 marks)**

**4** Draw a number line for each inequality.

(a) $x \leq 2.5$ (2)

(b) $x > -1.5$ (2)

**(4 marks)**

**5** A pupil says: $x > 3$ *and* $x \geq 4$ *mean the same thing, because the smallest whole number bigger than* $3$ *is* $4$*.*

(a) Find a number that is a solution of $x > 3$ but not of $x \geq 4$ (2)

(b) Write down the assumption the pupil made (2)

(c) If $x$ **is** a whole number, is the pupil right? (1)

**(5 marks)**

**6** **Extension.** You know that $5 > 3$.

(a) Is $5 + 2 > 3 + 2$ still true? (1)

(b) Is $5 \times 2 > 3 \times 2$ still true? (1)

(c) Is $5 \times (-1) > 3 \times (-1)$ still true? (1)

(d) Write a sentence about what multiplying by a negative number does to an inequality (2)

**(6 marks)**