

Inequalities: Starters

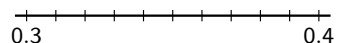
Inequalities: Starters

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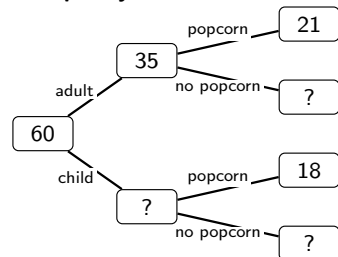
Inequalities: Starters

Starter 1: Inequality Symbols

Number line A



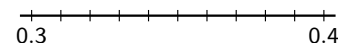
Frequency tree



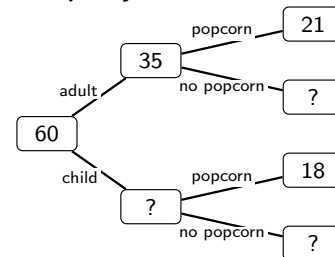
- Write $\frac{3}{8}$ as a decimal and as a percentage.
- Write 32 000 in standard form.
- Mark 32%, 0.35 and $\frac{3}{8}$ on number line A. Write them in order, using $<$.
- Write $<$ or $>$.
 3.2×10^4 9.8×10^3
 6×10^{-3} 2×10^{-2}
- 60 people watched a film. Complete the frequency tree.
- An adult is chosen at random. Find the probability that they bought popcorn, as a percentage. Do the same for a child. Write $<$ or $>$ between them.
- $x > 0.3$ means "x is greater than 0.3". Which of these could x be?
 $\frac{2}{5}$ 0.29 3×10^{-1} 31% $\frac{1}{4}$
- (Challenge) $0.2 > 0.15$. Is $-0.2 > -0.15$? Explain using a number line.

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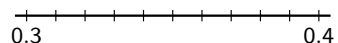
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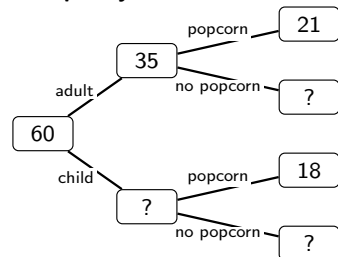
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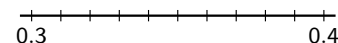
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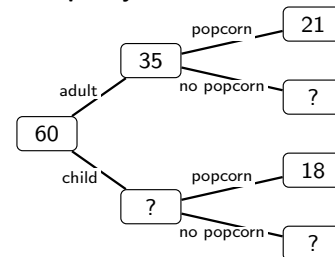
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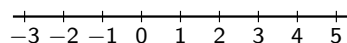
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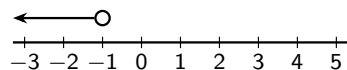
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Starter 2: Inequalities on a Number Line

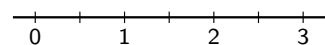
Number line A



Number line B



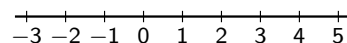
Number line C



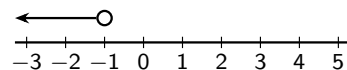
- Write 0.45 as a fraction and as a percentage.
- Write 6.1×10^{-3} as an ordinary number.
- Draw $x \geq 2$ on number line A. Can x be equal to 2?
- Write the inequality on number line B, and two integers that satisfy it.
- Draw $y > \frac{3}{2}$ on number line C. Does $y = 150\%$ satisfy it?
- Which of these satisfy $n > 4 \times 10^3$?
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- A match ends in a win, a draw or a loss. $P(\text{win}) = 0.35$ and $P(\text{draw}) = \frac{1}{5}$. Find $P(\text{loss})$ as a percentage. Write $<$ or $>$ between $P(\text{win})$ and $P(\text{loss})$.
- (Challenge) x is an integer, $x > -3$ and $x \leq 2$. List the values x can take.

Starter 2: Inequalities on a Number Line

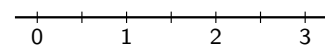
Number line A



Number line B



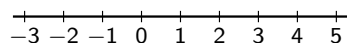
Number line C



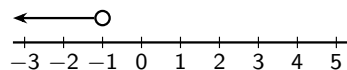
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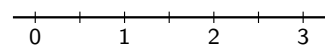
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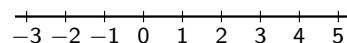
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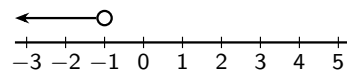
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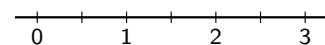
Number line A



Number line B



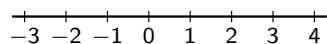
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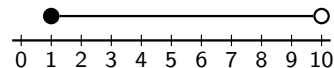
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Starter 3: Double Inequalities

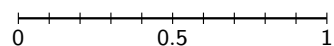
Number line A



Number line B



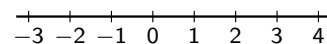
Number line C



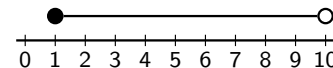
- Write $\frac{7}{20}$ as a decimal and as a percentage.
- Work out $(3 \times 10^4) \times (2 \times 10^3)$.
- Draw $-2 < x \leq 3$ on number line A. List the integers that satisfy it.
- Standard form is $A \times 10^n$. Number line B shows the values A can take. Write them as a double inequality.
- Which of these are in standard form?
 0.8×10^3 10×10^2 1×10^5 9.9×10^{-4}
- Write $\frac{1}{4} < x < 40\%$ using decimals. Does $x = \frac{1}{3}$ satisfy it?
- Every probability p satisfies $0 \leq p \leq 1$. The probability of rain tomorrow is more than 60%. Show the values p can take on number line C, and write them as a double inequality.
- (Challenge) $0.6 < P(\text{rain}) \leq 1$. Write a double inequality for $P(\text{no rain})$.

Starter 3: Double Inequalities

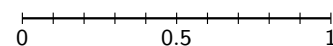
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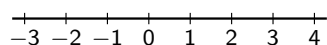
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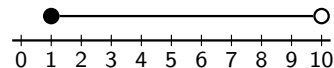
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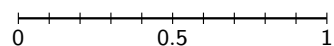
Number line A



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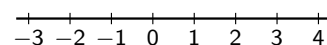
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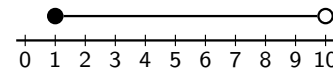
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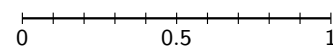
Number line A



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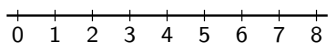
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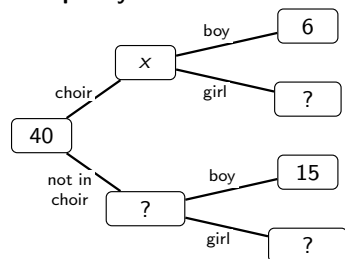
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Starter 4: Solving Inequalities

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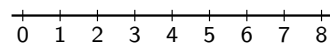
Frequency tree



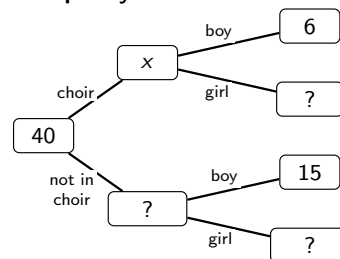
- Write 12% as a decimal and as a fraction in its simplest form.
- Work out $(8 \times 10^6) \div (2 \times 10^2)$.
- Solve $11 > 2x + 3$. Show the solution on number line A.
- 30% of y is less than 6. Write an inequality and solve it.
- Solve $3m \leq 1.2 \times 10^5$, giving m in standard form.
- 40 pupils were asked if they sing in the choir. Complete the frequency tree in terms of x .
- There are more girls than boys in the choir. Write an inequality in x and solve it.
- (Challenge) The probability that a pupil chosen at random is in the choir is also less than 0.4. List the values x can take.

Starter 4: Solving Inequalities

Number line A



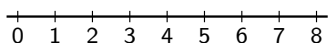
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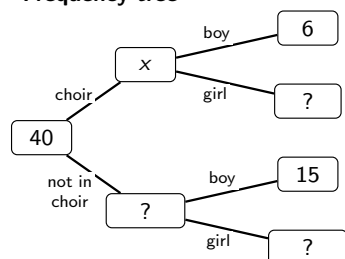
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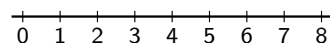
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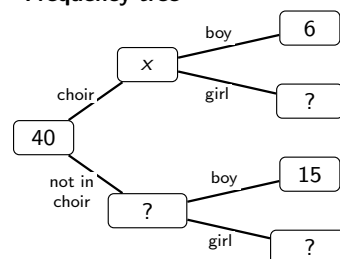
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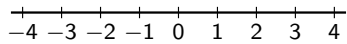
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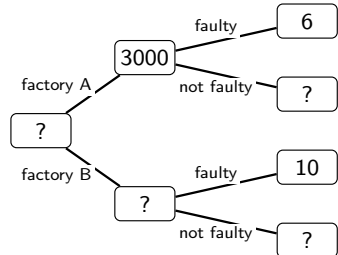
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Starter 5: Solving Double Inequalities

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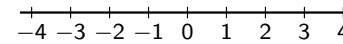
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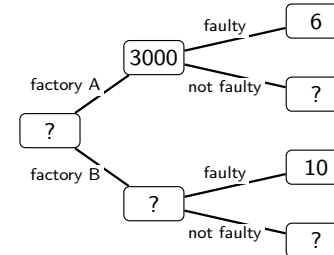
- Write $\frac{1}{8}$ as a decimal and as a percentage.
- Write 0.0032 in standard form.
- Solve $5x - 3 \leq 2x + 9$.
- A company made 5×10^3 phones. Complete the frequency tree.
- Write the probability that a phone from factory A is faulty in standard form. Do the same for factory B. Write $<$ or $>$ between them.
- Solve $-5 \leq 2x + 1 < 7$. Show it on number line A, and list the integers that satisfy it.
- A biased spinner lands on red with probability $2x - 0.4$. Use $0 \leq P(\text{red}) \leq 1$ to find the values x can take.
- (Challenge) A bag holds 4 red and n blue counters. $P(\text{red}) < 20\%$. Find the smallest value n can take.

Starter 5: Solving Double Inequalities

Number line A



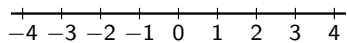
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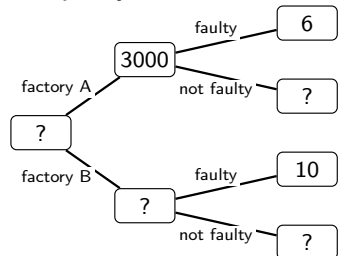
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- Solve $-5 \leq 2x + 1 < 7$. Show it on number line A, and list the integers that satisfy it.
- A biased spinner lands on red with probability $2x - 0.4$. Use $0 \leq P(\text{red}) \leq 1$ to find the values x can take.
- (Challenge) A bag holds 4 red and n blue counters. $P(\text{red}) < 20\%$. Find the smallest value n can take.

Starter 5: Solving Double Inequalities

Number line A



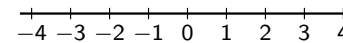
Frequency tree



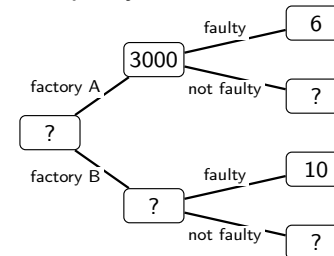
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- Write 0.0032 in standard form.
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