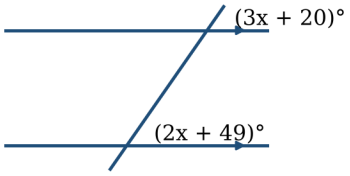
**Day 75** **A Tier 10-a-day**

**1** The curve C has equation $y = x^2 + 4x + 3$
(a) Find the coordinates of the points where C crosses the x-axis.
(b) Find the coordinates of the turning point of C.

**2** The frequency table shows data for 33 students.
(a) Find the median.
(b) Work out the range.

| Shoe size | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|
| Frequency | 8 | 6 | 3 | 9 | 7 |

**3** The diagram shows two parallel lines crossed by a straight line.
(a) Work out the value of x.
(b) Work out the size of the angle marked (3x + 20)°.
The diagram is not drawn accurately.




**4** Factorise $2x^2 + 3x - 20$

**5** Here are the times, in seconds, taken by 11 runners.
62 22 20 65 76 25 6 23 57 35 9
(a) Work out the median.
(b) Work out the interquartile range.

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|---|---|
| **6** (a) Show that $0.\dot{1}\dot{9} = \frac{19}{99}$<br>(b) Hence write $5.\dot{1}\dot{9}$ as a mixed number in its simplest form. | |
| **7** A rectangle measures 6 cm by 12 cm, each correct to the nearest cm. (Calculator)<br>Work out the upper bound for the length of a diagonal of the rectangle.<br>Give your answer to 3 significant figures. | |
| **8** Solve the simultaneous equations<br>$x^2 + y^2 = 289$<br>$y = x + 23$ | |
| **9** y is inversely proportional to x.<br>When x = 1, y = 12.<br>(a) Find a formula for y in terms of x.<br>(b) Work out the value of y when x = 2. | |
| **10** A cyclist travels 350 metres in 16.7 seconds.<br>The distance is correct to the nearest 10 metres and the time to the nearest 0.1 second.<br>(a) Work out the upper bound and the lower bound of the speed in m/s.<br>(b) Write the speed to a suitable degree of accuracy. Give a reason for your answer. | |