National 5 Maths Practice Paper C

Paper 1 You may NOT use a calculator

1. Evaluate $5.04 + 8.4 \div 7$. 2

2. Evaluate $\frac{2}{7}\left(1\frac{3}{4}+\frac{3}{8}\right)$. 2

3. Simplify $3(2x-4)-4(3x+1)$ 3

4. $f(x) = 7 - 4x$

   (a) Evaluate $f(-2)$. 1

   (b) Given that $f(t) = 9$, find t. 2

5. Solve, by factorising

   $7 + 6x - x^2 = 0$. 3

6. A hotel books taxis from a company called Quick-Cars.
   The receptionist notes the waiting time for every taxi ordered over a period of two weeks. These times, in minutes, are shown below.

12	25	29	37	6	13	26
32	42	7	14	29	35	44

   (a) For the given data, calculate:

   (i) the median 1

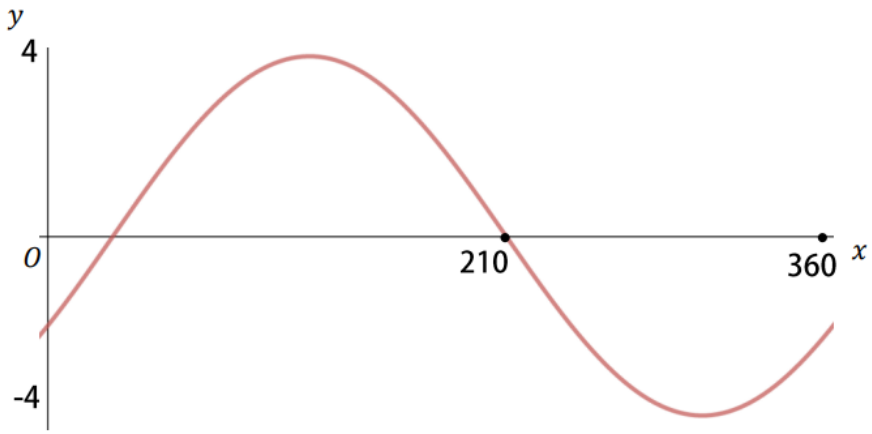
   (b) Calculate the interquartile range. 1

   In another two week period, the hotel books taxis from a company called Fast-Cabs.

   The median waiting time for Fast-Cabs is found to be 27.5 minutes and the interquartile range for Fast-Cabs is found to be 5 minutes.

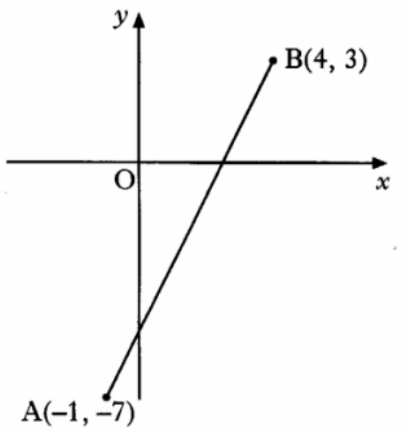
   (c) Use this information to compare the two companies. 2

7. Part of the graph of $y = a\sin(x + b)°$ is shown in the diagram.



State the values of a and b. 2

8. In the diagram below, A is the point $(-1, -7)$ and B is the point $(4,3)$.



(a) Find the gradient of the line AB. 1

(b) AB cuts the y-axis at the point $(0, -5)$.
Write down the equation of the line AB. 2

(c) The point $(3k, k)$ lies on AB. Find the value of k. 2

10. Andrew and Daisy each book in at the Sleepwell Lodge.

(a) Andrew stays for 3 nights and has breakfast on 2 mornings.
His bill is £145.
Write down an algebraic equation to illustrate this information. 1

(b) Daisy stays for 5 nights and has breakfast on 3 mornings.
Her bill is £240.
Write down an algebraic equation to illustrate this information. 1

(c) Find the cost of one breakfast 3

11. (a) Evaluate $8^{\frac{2}{3}}$ 2

(b) Simplify $\frac{\sqrt{24}}{\sqrt{2}}$ 2

(c) Simplify $\frac{2x+2}{(x+1)^2}$ 2