AQA, OCR, Edexcel

GCSE

GCSE Maths

Graph Transformations, Shifts and Stretches Mixed Answers

Name:

M M E

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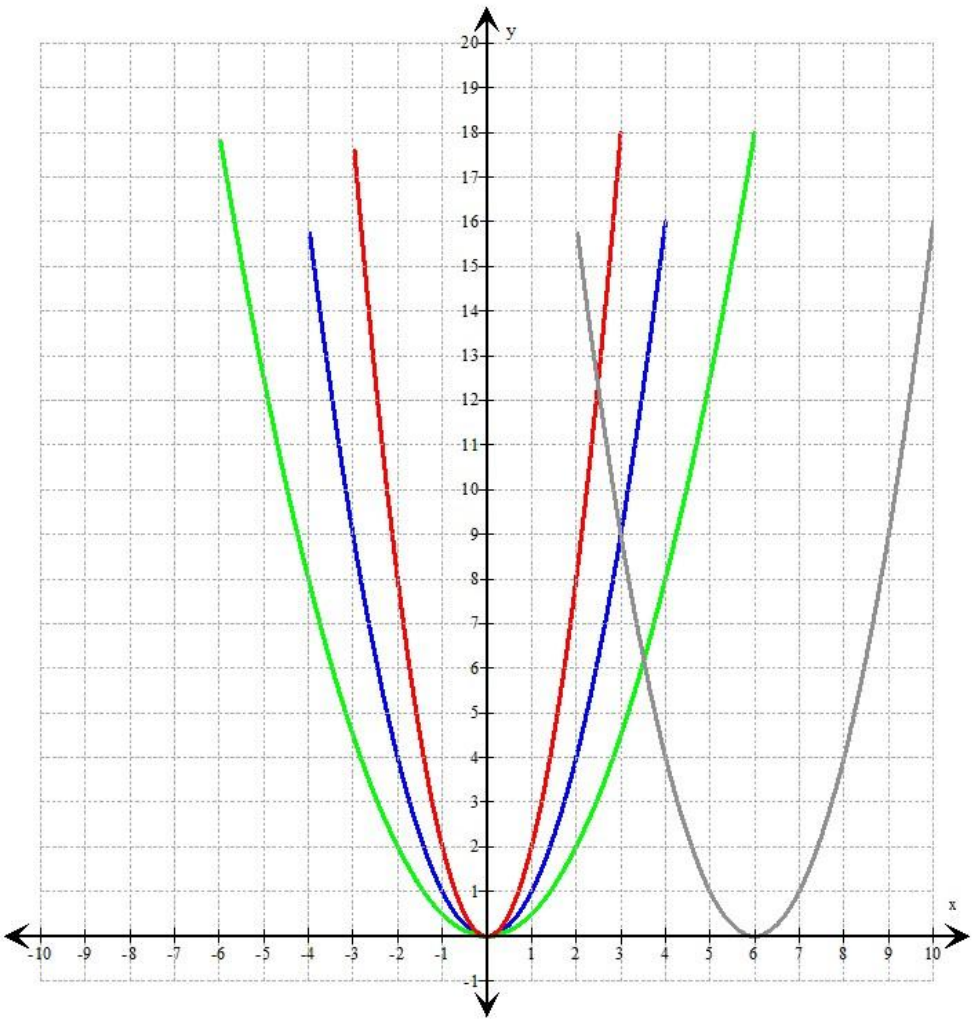
Total Marks: /21

Graph Shifts and Stretches (Mixed)

1. Describe the following transformations of $f(x)$:
   a. $y = f(x) - 3$ *translation by* $\begin{pmatrix} 0 \\ -3 \end{pmatrix}$
   b. $y = f(x + 1)$ *translation by* $\begin{pmatrix} -1 \\ 0 \end{pmatrix}$
   c. $y = f(2x)$ *stretch in x by a scale factor of* $\frac{1}{2}$.
   d. $y = 4f(x)$ *stretch in y by a scale factor of* 4.

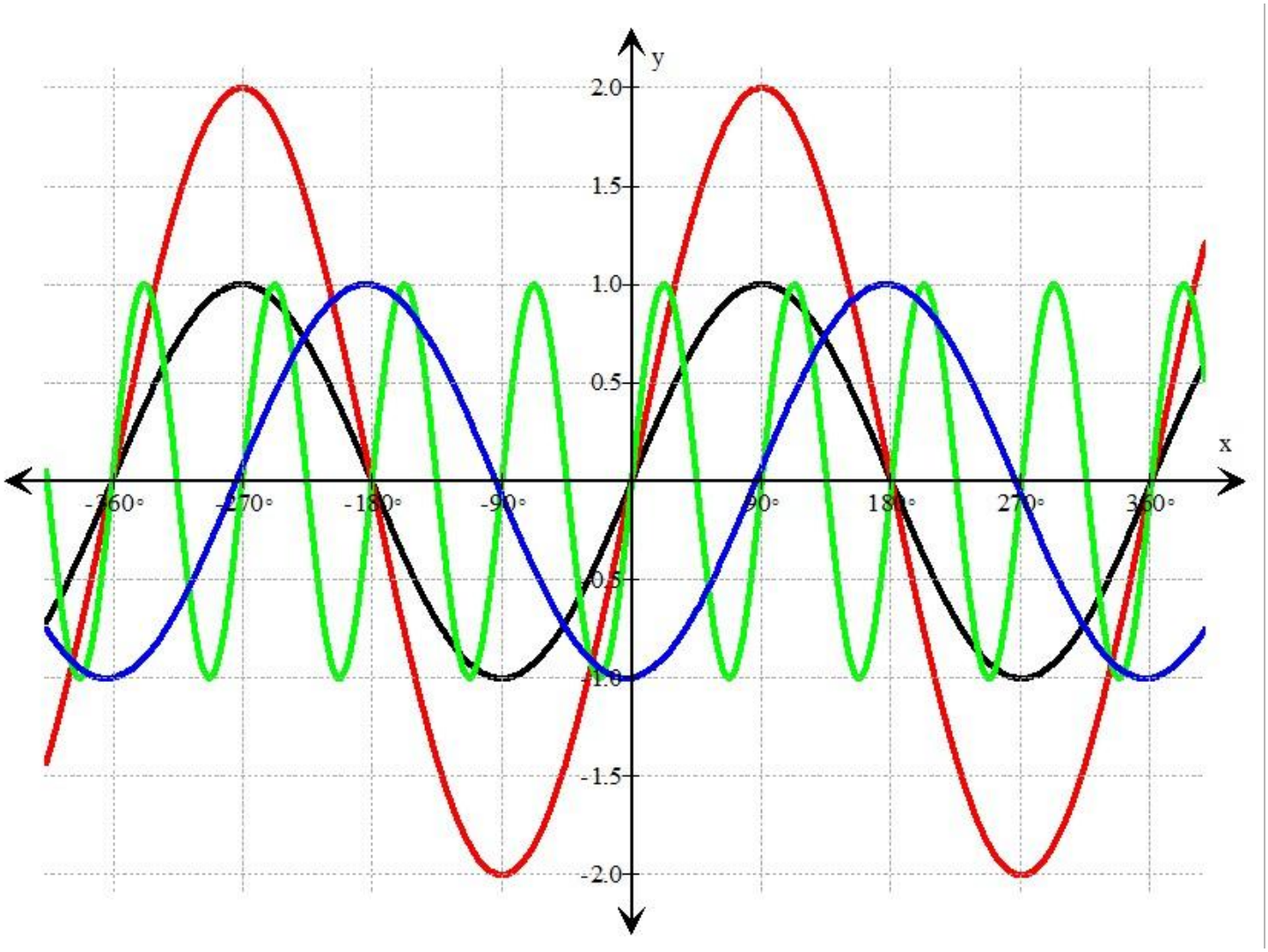
(8 Marks)

2. The graph of $y = x^2$ is plotted below. Sketch the following transformations of $y = x^2$ on the same set of axes:
   a. $y = \frac{1}{2}x^2$
   b. $y = 2x^2$
   c. $y = (x - 6)^2$



(6 marks)

3. The graph of $y = \sin(x)$ is plotted below. Sketch the following transformations of $y = \sin(x)$ on the same set of axes:
   a. $y = 2\sin(x)$
   b. $y = \sin(4x)$
   c. $y = \sin(x - 90)$

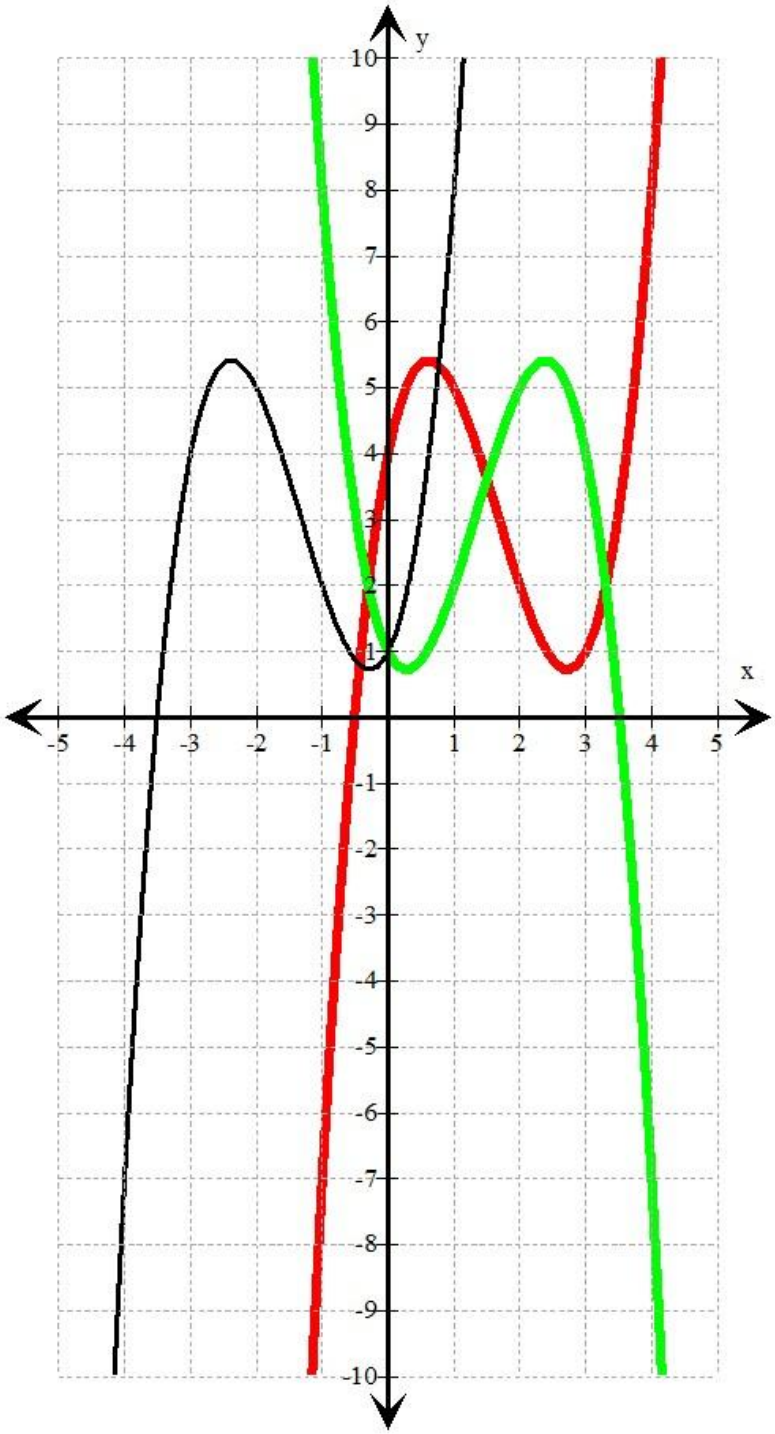


(3 Marks)

4. The graph of $y = f(x)$ is plotted below. Sketch the following transformations of $f(x)$ on the same set of axes:

   a. $\boldsymbol{y = f(x - 3)}$

   b. $y = f(-x)$



(4 Marks)