8.2 Transforming Graphs y=f(x): 10-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write down the equation of the graph obtained by translating y = f(x) 2 units to the right.

(Total for Question 1 is 1 mark)

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2 The point (2, -1) lies on the graph y = f(x). Find the coordinates of the corresponding point on the graph y = f(x) + 4.

(Total for Question 2 is 1 mark)

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3 Let g(x) = f(x + 3). Express h(x) = -g(-x) in terms of f(x).

(Total for Question 3 is 2 marks)

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4 Answer the following multiple choice questions on graph transformations.

(a) The graph of $y = f(x)$ is transformed to give the graph of $y = f(x) + 4$. Which of the following correctly describes this transformation? **(1)**

- ☐ A) Translation by vector (4, 0)
- ☐ B) Translation by vector (0, 4)
- ☐ C) Translation by vector (-4, 0)
- ☐ D) Translation by vector (0, -4)

(b) The graph of $y = g(x)$ is transformed to give the graph of $y = g(x - 5)$. Which of the following correctly describes this transformation? **(1)**

- ☐ A) Translation by vector (5, 0)
- ☐ B) Translation by vector (-5, 0)
- ☐ C) Translation by vector (0, 5)
- ☐ D) Translation by vector (0, -5)

(Total for Question 4 is 2 marks)

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5 $f(x) = x^2 - 6x - 4$. The graph of $y = f(x)$ is transformed to give the graph of $y = f(2x)$. Write the equation of the new graph in the form $y = ax^2 + bx + c$.

(Total for Question 5 is 3 marks)

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Mark scheme · 8.2 Transforming Graphs y=f(x): 10-minute Pack

Question 1

y = f(x - 2) cao	**B1**

Answer: y = f(x - 2)

Question 2

(2, 3) cao	**B1**

Answer: (2, 3)

Question 3

substitute g(-x) = f(-x + 3) or show -g(-x) = -f(-x + 3) oe	**M1**
h(x) = -f(3 - x) cao (equivalent forms acceptable)	**A1**

Answer: h(x) = -f(3 - x)

Question 4

(a) B	**B1**

(a) Answer: B

(b) A	**B1**

(b) Answer: A

Question 5

correct substitution into f, substitutes 2x for x	**M1**
expands brackets	**M1**
$y = 4x^2 - 12x - 4$	**A1**

Answer: $y = 4x^2 - 12x - 4$

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