4.5 Inequalities: 30-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Solve the inequality $2x - 1 \leq 7$. Give your answer in simplest form.

(Total for Question 1 is 2 marks)

2 Solve $4t + 6 \leq 30$

(Total for Question 2 is 2 marks)

3 Solve $5 - 5t < -15$

(Total for Question 3 is 3 marks)

4 n is an integer.

Write down all the values of n that satisfy $-6 < 4n - 1 \leq 14$

(Total for Question 4 is 3 marks)

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5 On a number line there is an open circle at -5 and an open circle at 0, with the line between them drawn thick.
Write down the inequality, in terms of y, that this number line shows.

(Total for Question 5 is 2 marks)

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6 Solve $4m + 9 < 3m + 14$

(Total for Question 6 is 3 marks)

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7 Solve $4t - 3 > -3$

(Total for Question 7 is 2 marks)

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8 Solve $3n - 9 < 2n - 8$

(Total for Question 8 is 3 marks)

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9 Solve the inequality $5 - 3x < 2$. Give your answer as an inequality and justify any sign change.

(Total for Question 9 is 5 marks)

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Mark scheme · 4.5 Inequalities: 30-minute Pack

Question 1

add 1 then divide by 2 shown, e.g. $2x \leq 8$ then $x \leq 4$	**M1**
$x \leq 4$ cao	**A1**

Answer: $x \leq 4$

Question 2

$4t \leq 24$ or equivalent	**M1**
$t \leq 6$	**A1**

Answer: $t \leq 6$

Question 3

$-5t < -20$ or $5 + 15 < 5t$	**M1**
divides by the negative coefficient and reverses the inequality or equivalent	**M1**
$t > 4$	**A1**

Answer: $t > 4$

Question 4

solves one side, e.g. $4n > -5$	**M1**
solves the other side	**M1**
$n = -1, 0, 1, 2, 3$	**A1**

Answer: $n = -1, 0, 1, 2, 3$

Question 5

$-5 < y$	**B1**
$y < 0$	**B1**

Answer: $-5 < y < 0$

Question 6

collects the letter terms on one side	**M1**
collects the numbers on the other side	**M1**
$m < 5$	**A1**

Answer: $m < 5$

Question 7

$4t > 0$ or equivalent	**M1**
$t > 0$	**A1**

Answer: $t > 0$

Question 8

collects the letter terms on one side	**M1**
collects the numbers on the other side	**M1**
$n < 1$	**A1**

Answer: $n < 1$

Question 9

subtract 5 from both sides to get $-3x < -3$	**M1**
divide both sides by -3 and reverse inequality to get $x > 1$	**M1**
$x > 1$ cao	**A1**
states reason: dividing by a negative number reverses the inequality	**B1**
example check: $x = 2$ satisfies $5 - 3x < 2$ (gives $-1 < 2$) or equivalent	**B1**

Answer: $x > 1$

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