7.7 Rearranging Harder Formulae: 1-hour Pack

EDEXCEL 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 $1/t = 3/a + 1/b$. Make b the subject of the formula.

(Total for Question 1 is 4 marks)

---

2 Make x the subject of $2(x + y) = x + 2$

(Total for Question 2 is 3 marks)

---

3 $y = 6\sqrt{x + 2}$. Make x the subject of the formula.

(Total for Question 3 is 3 marks)

---

4 $y = (x + 2)^2 + 3$, where $x + 2 > 0$. Make x the subject of the formula.

(Total for Question 4 is 3 marks)

© Revision Library | revisionlibrary.co.uk

5 $1/f = 4/u + 1/v$. Make v the subject of the formula.

(Total for Question 5 is 4 marks)

---

6 Make x the subject of $9(x + y) = x + 6$

(Total for Question 6 is 3 marks)

---

7 Make x the subject of $y = (3x + 6)/(4x + 1)$

(Total for Question 7 is 4 marks)

---

8 $y = (x - 4)^2 - 7$, where $x - 4 > 0$. Make x the subject of the formula.

(Total for Question 8 is 3 marks)

---

9 $1/t = 1/a + 1/b$. Make b the subject of the formula.

(Total for Question 9 is 4 marks)

© Revision Library | revisionlibrary.co.uk

10 $y = 3\sqrt{x - 2}$. Make x the subject of the formula.

(Total for Question 10 is 3 marks)

---

11 Make x the subject of $y = (3x - 4)/(4x + 5)$

(Total for Question 11 is 4 marks)

---

12 $y = (x - 2)^2 - 3$, where $x - 2 > 0$. Make x the subject of the formula.

(Total for Question 12 is 3 marks)

---

13 Make x the subject of $7(x + y) = 8x + 4$

(Total for Question 13 is 3 marks)

---

14 The period of a mass on a spring is given by $T = 2pi\sqrt{m/k}$. Rearrange this formula to make k the subject.

(Total for Question 14 is 3 marks)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 7.7 Rearranging Harder Formulae: 1-hour Pack

Question 1

1/b = 1/t - 3/a	**M1**
combines into a single fraction	**M1**
inverts both sides	**M1**
b = ta/(a - 3t) oe	**A1**

Answer: b = ta/(a - 3t)

Question 2

expands the bracket	**M1**
collects x terms on one side	**M1**
x = (2 - 2y) oe	**A1**

Answer: x = (2 - 2y)

Question 3

divides by 6	**M1**
squares both sides	**M1**
$x = (y/6)^2 - 2$ oe	**A1**

Answer: $x = (y/6)^2 - 2$

Question 4

$y - 3 = (x + 2)^2$	**M1**
square roots	**M1**
$x = \sqrt{y - 3} - 2$ oe	**A1**

Answer: $x = \sqrt{y - 3} - 2$

Question 5

1/v = 1/f - 4/u	**M1**
combines into a single fraction	**M1**
inverts both sides	**M1**
v = fu/(u - 4f) oe	**A1**

Answer: v = fu/(u - 4f)

Question 6

expands the bracket	**M1**
collects x terms on one side	**M1**
x = (6 - 9y)/8 oe	**A1**

Answer: x = (6 - 9y)/8

Question 7

multiplies both sides by the denominator	**M1**
expands the bracket	**M1**
collects x terms on one side and factorises	**M1**
x = (y - 6)/(3 - 4y) oe	**A1**

Answer: x = (y - 6)/(3 - 4y)

Question 8

$y + 7 = (x - 4)^2$	**M1**
square roots	**M1**
$x = \sqrt{y + 7} + 4$ oe	**A1**

Answer: $x = \sqrt{y + 7} + 4$

Question 9

1/b = 1/t - 1/a	**M1**
combines into a single fraction	**M1**
inverts both sides	**M1**
b = ta/(a - t) oe	**A1**

Answer: b = ta/(a - t)

Question 10

divides by 3	**M1**
squares both sides	**M1**
$x = (y/3)^2 + 2$ oe	**A1**

Answer: $x = (y/3)^2 + 2$

Question 11

multiplies both sides by the denominator	**M1**
expands the bracket	**M1**
collects x terms on one side and factorises	**M1**
x = (5y + 4)/(3 - 4y) oe	**A1**

Answer: x = (5y + 4)/(3 - 4y)

Question 12

$y + 3 = (x - 2)^2$	**M1**
square roots	**M1**
$x = \sqrt{y + 3} + 2$ oe	**A1**

Answer: $x = \sqrt{y + 3} + 2$

Question 13

expands the bracket	**M1**
collects x terms on one side	**M1**
x = (4 - 7y)/(-1) oe	**A1**

Answer: x = (4 - 7y)/(-1)

Question 14

isolate the square root: $T/(2pi) = \sqrt{m/k}$, then square both sides	**M1**
obtain $T^2/(4pi^2) = m/k$ and rearrange to $k = 4pi^2\ m/T^2$	**M1**
$k = 4pi^2\ m/T^2$ cao	**A1**

Answer: $k = 4pi^2\ m/T^2$

© Revision Library | revisionlibrary.co.uk