2.10 Solving One and Two Step Equations: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Solve n/8 - 13 = -20

(2)

2 Solve 9 - 8p = -7

(2)

3 Solve 1 - 3b = -26

(2)

4 The sides of a triangle, in centimetres, are (x + 3), 2x and (3x - 1). The perimeter is 50 cm.
(a) Form and simplify an equation in x.
(b) Solve it to find x.

(4)

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5 I think of a number, multiply it by 5 and add 1. The answer is 31. Form an equation and solve it to find my number.

(3)

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6 The sides of a triangle, in centimetres, are (x + 3), 5x and (6x - 4). The perimeter is 131 cm.

(a) Form and simplify an equation in x.

(b) Solve it to find x.

(4)

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7 Solve the equation 3x + 7 = 22. Show the steps.

(2)

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8 A rectangle has length (x + 4) cm and width 2 cm. Its area is 28 cm². Form an equation and find x.

Diagram NOT accurately drawn



28 cm²

(3)

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9 Solve n/9 - 1 = -5

(2)

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10 The sides of a triangle, in centimetres, are (x + 9), 4x and (5x - 4). The perimeter is 35 cm.

(a) Form and simplify an equation in x.

(b) Solve it to find x.

(4)

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11 Solve b - 16 = -18

(1)

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12 Solve m/6 - 12 = -1

(2)

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13 Solve b + 9 = -3

(1)

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14 The cost, C pounds, of hiring a ladder for h days is given by C = 31 + 5h.
The total cost is £91. Work out the number of days.

(3)

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15 The sides of a triangle, in centimetres, are (x + 3), 5x and (6x - 3). The perimeter is 132 cm.
(a) Form and simplify an equation in x.
(b) Solve it to find x.

(4)

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16 Solve the two-step equation. Show your working.

(a) $3x + 4 = 19$ **(3)**

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17 The cost, C pounds, of hiring a ladder for h days is given by $C = 49 + 6h$.
Work out the cost of hiring the ladder for 15 days.

(2)

18 Three times a number is subtracted from 40, giving a result of 7. Form an equation for the number, n, and solve it.

(3)

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Mark scheme · 2.10 Solving One and Two Step Equations: 1-hour Pack

Question 1

correct first step (undoing the + or - or reordering)	M1
n = -56 cao	A1

Answer: **n = -56**

Question 2

correct first step (undoing the + or - or reordering)	M1
p = 2 cao	A1

Answer: **p = 2**

Question 3

correct first step (undoing the + or - or reordering)	M1
b = 9 cao	A1

Answer: **b = 9**

Question 4

adds the three sides	M1
6x + 2 = 50	A1
correct method to solve	M1
x = 8 cao	A1

Answer: **(a) 6x + 2 = 50, (b) x = 8**

Question 5

5n + 1 = 31 (or equivalent equation)	M1
correct method to solve	M1
6 cao	A1

Answer: **6**

Question 6

adds the three sides	M1
12x - 1 = 131	A1
correct method to solve	M1
x = 11 cao	A1

Answer: **(a) 12x - 1 = 131, (b) x = 11**

Question 7

subtract 7 from both sides or show 3x = 15	M1
x = 5 cao	A1

Answer: **5**

Question 8

2(x + 4) = 28	M1
correct method to solve	M1
x = 10 cao	A1

Answer: **x = 10**

Question 9

correct first step (undoing the + or - or reordering)	M1
n = -36 cao	A1

Answer: **n = -36**

Question 10

adds the three sides	M1
10x + 5 = 35	A1
correct method to solve	M1
x = 3 cao	A1

Answer: **(a) 10x + 5 = 35, (b) x = 3**

Question 11

b = -2 cao	B1

Answer: **b = -2**

Question 12

correct first step (undoing the + or - or reordering)	M1
m = 66 cao	A1

Answer: **m = 66**

Question 13

b = -12 cao	B1

Answer: **b = -12**

Question 14

31 + 5h = 91	M1
5h = 60 or equivalent	M1
12 (days) cao	A1

Answer: **12 days**

Question 15

adds the three sides	M1
12x = 132	A1
correct method to solve	M1
x = 11 cao	A1

Answer: **(a) 12x = 132, (b) x = 11**

Question 16

(a) subtract 4 from both sides to give 3x = 15	M1
(a) divide both sides by 3 to give x = 5	M1
(a) x = 5 cao	A1

(a) Answer: **5**

Question 17

substitutes h = 15: 49 + 6 x 15	M1
£139 cao	A1

Answer: **£139**

Question 18

forms 40 - 3n = 7	M1
correct rearrangement, e.g. 3n = 33	M1
n = 11 cao	A1

Answer: **n = 11**

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