2.9 Solving One Step Equations: 2-hour Pack

EDEXCEL 1MA1 · Calculator allowed · about 120 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Solve x - 9 = -2

(Total for Question 1 is 2 marks)

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2 I think of a number. I multiply it by 7. The answer is 259. What is my number?

(Total for Question 2 is 2 marks)

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3 Solve 5x = 8. Give your answer as a fraction or a decimal.

(Total for Question 3 is 2 marks)

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4 Solve 11x = 66

(Total for Question 4 is 2 marks)

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5 I think of a number. I multiply it by 7. The answer is 273. What is my number?

(Total for Question 5 is 2 marks)

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6 The perimeter of an equilateral triangle is 162 cm. Each side has length 9x cm. Work out the value of x.

(Total for Question 6 is 2 marks)

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7 Solve 9x = 8. Give your answer as a fraction or a decimal.

(Total for Question 7 is 2 marks)

---

8 The perimeter of an equilateral triangle is 42 cm. Each side has length 2x cm. Work out the value of x.

(Total for Question 8 is 2 marks)

---

9 Solve each equation.

(a) x - 6 = -2 **(2)**

(b) 8 - x = 11 **(2)**

(Total for Question 9 is 4 marks)

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10 Solve 5x = 3. Give your answer as a fraction or a decimal.

(Total for Question 10 is 2 marks)

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11 The perimeter of an equilateral triangle is 195 cm. Each side has length 5x cm. Work out the value of x.

(Total for Question 11 is 2 marks)

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12 I think of a number. I add 12. The answer is 30. What is my number?

(Total for Question 12 is 2 marks)

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13 The perimeter of an equilateral triangle is 234 cm. Each side has length 6x cm. Work out the value of x.

(Total for Question 13 is 2 marks)

---

14 Solve $x + 6 = 1$.

(Total for Question 14 is 2 marks)

---

15 I think of a number. I add 9. The answer is 26. What is my number?

(Total for Question 15 is 2 marks)

---

16 The perimeter of an equilateral triangle is 63 cm. Each side has length 7x cm. Work out the value of x.

(Total for Question 16 is 2 marks)

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17 The perimeter of an equilateral triangle is 189 cm. Each side has length 9x cm. Work out the value of x.

(Total for Question 17 is 2 marks)

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18 Solve each equation.

(a) 3x = 21 **(2)**

(b) 4x = 18 **(2)**

(Total for Question 18 is 4 marks)

---

19 I think of a number. I add 5. The answer is 37. What is my number?

(Total for Question 19 is 2 marks)

---

20 Solve each equation.

(a) x / 4 = 5 **(2)**

(b) x / 6 = -3 **(2)**

(Total for Question 20 is 4 marks)

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21 Solve each equation.

(a) $x + 1.5 = 4$ **(2)**

(b) $x - 2.5 = 6.5$ **(2)**

(Total for Question 21 is 4 marks)

22 Solve

$12x = 3$

(Total for Question 22 is 2 marks)

23 Solve each equation.

(a) $x - 10 = -3$ **(2)**

(b) $15 - x = 22$ **(2)**

(Total for Question 23 is 4 marks)

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24 Solve each equation.

(a) $6x = 45$ **(2)**

(b) $-5x = 35$ **(2)**

(Total for Question 24 is 4 marks)

25 The table below shows three equations. Work out the missing solution in each row.

(a) $24 / x = 6$ **(1)**

(b) $x / 5 = -3$ **(1)**

(c) $45 / x = -9$ **(1)**

(Total for Question 25 is 3 marks)

26 A school coach trip normally costs £45 per student. After a group discount is applied, each student pays £38.

Form an equation for the discount, d, in pounds, and solve it to find d.

(Total for Question 26 is 2 marks)

27 Solve $x + 3.5 = 7.2$.

(Total for Question 27 is 1 mark)

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28 Solve 5 + n = -2.

(Total for Question 28 is 1 mark)

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29 Solve x / 0.2 = 15.

(Total for Question 29 is 1 mark)

---

30 Solve 7 = y / (-3).

(Total for Question 30 is 1 mark)

---

31 Solve (1/2)k = -3.

(Total for Question 31 is 1 mark)

---

32 Solve x/4 = 3.

(Total for Question 32 is 1 mark)

---

33 Solve x/5 = -6.

(Total for Question 33 is 1 mark)

---

34 Solve (1/3)p = 4.

(Total for Question 34 is 1 mark)

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35 Solve

$4x = -9$

Give your answer as a decimal.

(Total for Question 35 is 2 marks)

---

36 Solve

$x / (-3) = 6$

(Total for Question 36 is 2 marks)

---

37 Solve

$12 - x = 20$

(Total for Question 37 is 2 marks)

---

38 Solve

$6x = -0.9$

(Total for Question 38 is 2 marks)

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39 Solve

$17 - x = -6$

(Total for Question 39 is 2 marks)

---

40 Solve

$-6x = -0.3$

(Total for Question 40 is 2 marks)

---

41 Solve each of the following. Give exact answers where appropriate.

(a) $4x = 9$ **(1)**

(b) $x/6 = 2.5$ **(1)**

(c) $-2y = 7$ **(1)**

(Total for Question 41 is 3 marks)

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42 Solve $(3/4)x = 9$. Show your method and give the exact value of x.

(Total for Question 42 is 2 marks)

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Mark scheme · 2.9 Solving One Step Equations: 2-hour Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

uses the inverse operation on both sides **M1**
x = 7 cao **A1**
Answer: x = 7

Question 2

forms an equation or uses an inverse operation **M1**
37 cao **A1**
Answer: 37

Question 3

divides both sides by 5 **M1**
x = 1.6 oe **A1**
Answer: x = 1.6

Question 4

uses the inverse operation on both sides **M1**
x = 6 cao **A1**
Answer: x = 6

Question 5

forms an equation or uses an inverse operation **M1**
39 cao **A1**
Answer: 39

Question 6

3 x 9x = 162 or 9x = 54 **M1**
x = 6 cao **A1**
Answer: x = 6

Question 7

divides both sides by 9 **M1**
x = 8/9 oe **A1**
Answer: x = 8/9

Question 8

3 x 2x = 42 or 2x = 14 **M1**
x = 7 cao **A1**
Answer: x = 7

Question 9

(a) 6 added to both sides oe **M1**
(a) x = 4 cao **A1**
(a) Answer: x = 4
(b) 8 subtracted from both sides oe, -x = 3 seen **M1**
(b) x = -3 cao **A1**
(b) Answer: x = -3

Question 10

divides both sides by 5 **M1**
x = 0.6 oe **A1**
Answer: x = 0.6

Question 11

3 x 5x = 195 or 5x = 65 **M1**
x = 13 cao **A1**
Answer: x = 13

Question 12

forms an equation or uses an inverse operation **M1**
18 cao **A1**
Answer: 18

Question 13

3 x 6x = 234 or 6x = 78 **M1**
x = 13 cao **A1**
Answer: x = 13

Question 14

subtracts 6 from both sides **M1**
x = -5 cao **A1**
Answer: x = -5

Question 15

forms an equation or uses an inverse operation **M1**
17 cao **A1**
Answer: 17

Question 16

3 x 7x = 63 or 7x = 21 **M1**
x = 3 cao **A1**
Answer: x = 3

Question 17

3 x 9x = 189 or 9x = 63 **M1**
x = 7 cao **A1**
Answer: x = 7

Question 18

(a) both sides divided by 3 oe **M1**
(a) x = 7 cao **A1**
(a) Answer: x = 7
(b) both sides divided by 4 oe **M1**
(b) x = 4.5 oe cao **A1**
(b) Answer: x = 4.5

Question 19

forms an equation or uses an inverse operation **M1**
32 cao **A1**
Answer: 32

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Question 20

(a) both sides multiplied by 4 oe **M1**

(a) x = 20 cao **A1**

(a) Answer: x = 20

(b) both sides multiplied by 6 oe **M1**

(b) x = -18 cao **A1**

(b) Answer: x = -18

Question 21

(a) 1.5 subtracted from both sides oe **M1**

(a) x = 2.5 cao **A1**

(a) Answer: x = 2.5

(b) 2.5 added to both sides oe **M1**

(b) x = 9 cao **A1**

(b) Answer: x = 9

Question 22

both sides divided by 12 oe **M1**

x = 0.25 oe cao **A1**

Answer: x = 0.25

Question 23

(a) 10 added to both sides oe **M1**

(a) x = 7 cao **A1**

(a) Answer: x = 7

(b) 15 subtracted from both sides oe, -x = 7 seen **M1**

(b) x = -7 cao **A1**

(b) Answer: x = -7

Question 24

(a) both sides divided by 6 oe **M1**

(a) x = 7.5 oe cao **A1**

(a) Answer: x = 7.5

(b) both sides divided by -5 oe **M1**

(b) x = -7 cao **A1**

(b) Answer: x = -7

Question 25

(a) x = 4 cao **B1**

(a) Answer: x = 4

(b) x = -15 cao **B1**

(b) Answer: x = -15

(c) x = -5 cao **B1**

(c) Answer: x = -5

Question 26

correct equation formed, 45 - d = 38 oe **M1**

d = 7 (or £7) cao **A1**

Answer: d = £7

Question 27

x = 3.7 cao **B1**

Answer: 3.7

Question 28

n = -7 cao **B1**

Answer: -7

Question 29

x = 3 cao **B1**

Answer: 3

Question 30

y = -21 cao **B1**

Answer: -21

Question 31

k = -6 cao **B1**

Answer: -6

Question 32

x = 12 cao **B1**

Answer: 12

Question 33

x = -30 cao **B1**

Answer: -30

Question 34

p = 12 cao **B1**

Answer: 12

Question 35

both sides divided by 4 oe **M1**

x = -2.25 oe cao **A1**

Answer: x = -2.25

Question 36

both sides multiplied by -3 oe **M1**

x = -18 cao **A1**

Answer: x = -18

Question 37

12 subtracted from both sides oe, -x = 8 seen **M1**

x = -8 cao **A1**

Answer: x = -8

Question 38

both sides divided by 6 oe **M1**

x = -0.15 oe cao **A1**

Answer: x = -0.15

Question 39

17 subtracted from both sides oe, -x = -23 seen **M1**

x = 23 cao **A1**

Answer: x = 23

Question 40

both sides divided by -6 oe **M1**

x = 0.05 oe cao **A1**

Answer: x = 0.05

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Question 41

(a) x = 9/4 cao **B1**

(a) Answer: 9/4

(b) x = 15 cao **B1**

(b) Answer: 15

(c) y = -7/2 cao **B1**

(c) Answer: -7/2

Question 42

multiply both sides by 4/3 or show x = 9 * (4/3) **M1**

x = 12 cao **A1**

Answer: 12

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