



KS3.M-A10 Solving One and Two Step Equations

AQA KS3.M-A10 · Calculators not allowed · about 50 minutes

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

1 Solve the equations. Write your answer for each part.

(a) $x + 5 = 12$ (1)

(b) $y - 3 = 4$ (1)

(c) $2a = 10$ (1)

(d) $b/4 = 3$ (1)

2 Solve the equation $8 + x = 11$ and check your answer by substitution.

(2)

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

(2)

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

(a) $3x + 4 = 19$

(3)

5 Solve the equation $5k + 9 = -1$. Show each step.

(3)

6 Solve each equation. Show each step.

(a) $4p - 6 = 10$

(2)

(b) $7 = 2m + 1$

(2)

7 Solve the equation $-2x - 8 = -14$. Show your working.

(3)

8 Solve the equation $-2t - 5 = 4$. Show the steps and give your answer as a fraction or decimal.

(3)

9 Solve the equation $(1/3)x = 3$. Give your answer as an integer.

(2)

10 Solve the equation $(1/4)k = 10$. Give your answer as an integer.

(2)

11 Solve the equation $(2/5)b + 2 = 7$. Give your answer as a fraction or mixed number where appropriate.

(3)

12 Solve the equation $3/4 x - 1 = 5$. Give your answer as a fraction or integer.

(2)

13 Solve the equation $5 - 2y = 11$. Show your steps.

(2)

14 Solve the equation $6 + 1.5x = 12$. Show your working and give your answer as a decimal.

(3)

15 Solve the two-step equation and check by substitution: $2(3 + n) = 14$.

(2)

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Question 1

- (a) **B1** $x = 7$ cao
- (a) Answer: **7**
- (b) **B1** $y = 7$ cao
- (b) Answer: **7**
- (c) **B1** $a = 5$ cao
- (c) Answer: **5**
- (d) **B1** $b = 12$ cao
- (d) Answer: **12**

Question 2

- **M1** isolation of the variable, e.g. $x = 11 - 8$
- **A1** $x = 3$ cao
- Answer: **3**

Question 3

- **M1** subtract 7 from both sides or show $3x = 15$
- **A1** $x = 5$ cao
- Answer: **5**

Question 4

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

Question 5

- **M1** subtract 9 from both sides or show $5k = -10$
- **M1** divide both sides by 5 to give $k = -2$
- **A1** $k = -2$ cao
- Answer: **-2**

Question 6

- (a) **M1** add 6 to both sides to get $4p = 16$
- (a) **A1** $p = 4$ cao
- (a) Answer: **4**
- (b) **M1** subtract 1 to give $2m = 6$
- (b) **A1** $m = 3$ cao
- (b) Answer: **3**

Question 7

- **M1** add 8 to both sides giving $-2x = -6$
- **M1** divide both sides by -2 to give $x = 3$
- **A1** $x = 3$ cao
- Answer: **3**

Question 8

- **M1** add 5 to both sides to give $-2t = 9$
- **M1** divide both sides by -2 to give $t = -9/2$
- **A1** $t = -9/2$ or $t = -4.5$ cao
- **Answer: $-9/2$**

Question 9

- **M1** multiply both sides by 3 to give $x = 9$
- **A1** $x = 9$ cao
- **Answer: 9**

Question 10

- **M1** multiply both sides by 4 to clear denominator: $k = 40$
- **A1** $k = 40$ cao
- **Answer: 40**

Question 11

- **M1** subtract 2 from both sides to give $(2/5)b = 5$
- **M1** multiply both sides by $5/2$ to give $b = 5 \times 5/2 = 25/2$
- **A1** $b = 25/2$ or $12 \frac{1}{2}$ cao
- **Answer: $25/2$**

Question 12

- **M1** add 1 to both sides to give $3/4 x = 6$
- **A1** $x = 6 \times 4/3 = 8$ cao
- **Answer: 8**

Question 13

- **M1** subtract 5 from both sides to give $-2y = 6$
- **A1** $y = -3$ cao
- **Answer: -3**

Question 14

- **M1** subtract 6 from both sides to get $1.5x = 6$
- **M1** divide both sides by 1.5 to give $x = 4$
- **A1** $x = 4$ cao
- **Answer: 4**

Question 15

- **M1** expand or divide by 2 first: $2(3+n)=14$ gives $3+n=7$
- **A1** $n = 4$ cao
- **Answer: 4**