MATHEMATICS · GRADES 7-9

Forming equations from word problems

Difficulty level: Intermediate

Mathematics: Grades 7-9

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Overview of the concept

This is how you turn a real story into maths, like working out how many tickets you can buy with the money in your pocket. Almost every money question in real life starts as words, not numbers, and you have to turn the words into something you can calculate. Once you can do that, you can work out whether you can afford a purchase, how many hours you need to work to pay for something, or how much paint you need for a room.



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Worked examples

EXAMPLE 1

Q What equation shows that five more than a number is 14?

SOLUTION

Picture it

Form an equation: five more than a number is 14.

Work it one step at a time, top to bottom.

Let the number be x.

Five more than x is x + 5

It is 14, so the equation is x + 5 = 14

EXAMPLE 2

Q What equation shows that three times a number, minus 2, is 10?

SOLUTION

Picture it

Form an equation: three times a number, minus 2, is 10.

Work it one step at a time, top to bottom.

Let the number be x.

Three times a number is 3x. Take 2 away, and you get 3x – 2

It is 10, so the equation is 3x – 2 = 10

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Practice questions

1 Form an equation: a number + 6 is 15 (use x).

- **A** x + 6 = 15
- **B** x - 6 = 15
- **C** 6x = 15
- **D** x + 15 = 6

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2 Form an equation: twice a number is 18 (use n).

- **A** n + 2 = 18
- **B** n ÷ 2 = 18
- **C** 2n = 18
- **D** n - 2 = 18

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3 Yara had some marbles. She gave away 4 marbles and has 9 left. Write the equation for the number she started with, using y.

- **A** y + 4 = 9
- **B** y - 4 = 9
- **C** 4y = 9
- **D** 4 - y = 9

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4 Three bags hold the same number of apples. Five apples are taken out and 13 apples are left. Write the equation for the number in one bag, using x.

- **A** 3x + 5 = 13
- **B** 3x = 13
- **C** x - 5 = 13
- **D** 3x - 5 = 13

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5 Four teams score the same number of points, and one bonus point is added. The total is 21 points. Write the equation for one team's score, using x.

- **A** 4x + 1 = 21
- **B** 4x - 1 = 21
- **C** 4 + x = 21
- **D** 4x = 21

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6 Five friends share the cost of a gift equally, and a 3 dollar discount is taken off. They pay 17 dollars in all. Write the equation for one friend's share, using m.

- **A** 5m + 3 = 17
- **B** m - 3 = 17
- **C** 5m - 3 = 17
- **D** 5m = 17

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7 $\frac{1}{2}$ of a rope is 7 metres long. Write the equation for the full length of the rope, using m.

- **A** $2m = 7$
- **B** $\frac{m}{2} = 7$
- **C** $m + 2 = 7$
- **D** $m - 2 = 7$

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8 Two concert tickets cost the same price, and a 5 dollar fee is added. The total is 25 dollars. Write the equation for one ticket's price, using p.

- **A** $2p + 5 = 25$
- **B** $2p - 5 = 25$
- **C** $2p = 25$
- **D** $p + 5 = 25$

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9 A number divided by 3 is 8. Write the equation, using n.

- **A** n ÷ 3 = 8
- **B** 3n = 8
- **C** n - 3 = 8
- **D** n + 3 = 8

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10 Six boxes hold the same number of pencils. Four more pencils are put in and there are 28 pencils in all. Write the equation for the number in one box, using t.

- **A** 6t + 4 = 28
- **B** 6t - 4 = 28
- **C** 6t = 28
- **D** t + 4 = 28

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ANSWER KEY

1. $x + 6 = 15$

2. $2n = 18$

3. $y - 4 = 9$

4. $3x - 5 = 13$

5. $4x + 1 = 21$

6. $5m - 3 = 17$

7. $\frac{m}{2} = 7$

8. $2p + 5 = 25$

9. $n \div 3 = 8$

10. $6t + 4 = 28$

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