Maths Worksheet

Calculate Angles in Triangles and on Parallel Lines

In this worksheet, students will use angle rules to work out the missing angles in triangles and parallel lines.

Key Information

Topic	Angles
Level (1-3)	●○○
Questions	10
Key Stage	KS 3
Year	8
Curriculum Coverage	Geometry and Measures
Curriculum Skill	Understand the Relationship Between Parallel Lines and Angles

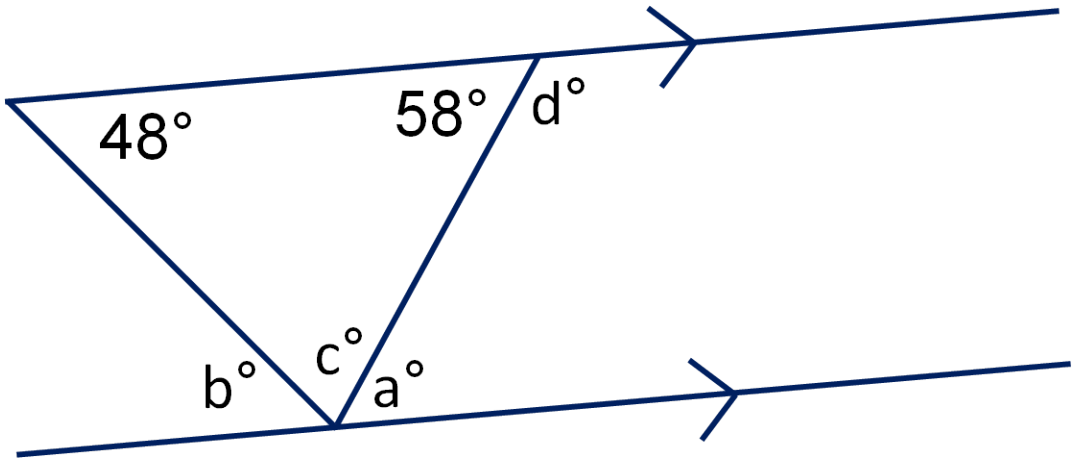
Name

Date

Introduction

Look at the following diagram.

We can use our knowledge of angle rules to work out all the missing angles.



Angle aº = 58º because it is **alternate** to the 58º on parallel lines (Z or S shape)

Angle bº = 48º because it is **alternate** to the 48º on parallel lines (Z or S shape)

Angle cº = 180º - 48º - 58º = 74º for two reasons.....angles in **a triangle** add up to 180º and angles on a **straight line** add up to 180º

Angle dº = 180º - 58º = 122º because angles on a **straight line** add up to 180º

Let's have a go at some questions now.

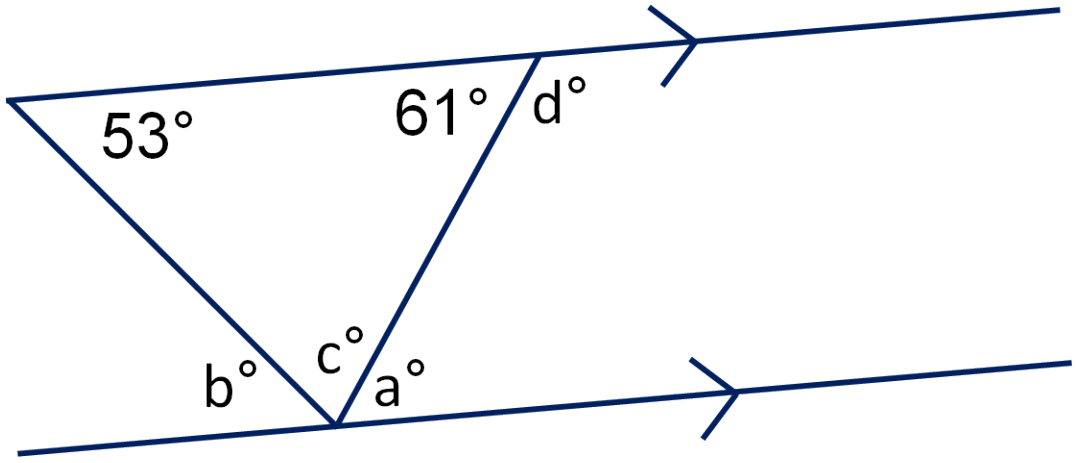
You can look back to this page for a reminder of the rules by clicking on the pink button at the side of the activity.

QUESTIONS

Question 1

Look at the following diagram and work out the value of c.

(Just write the number)

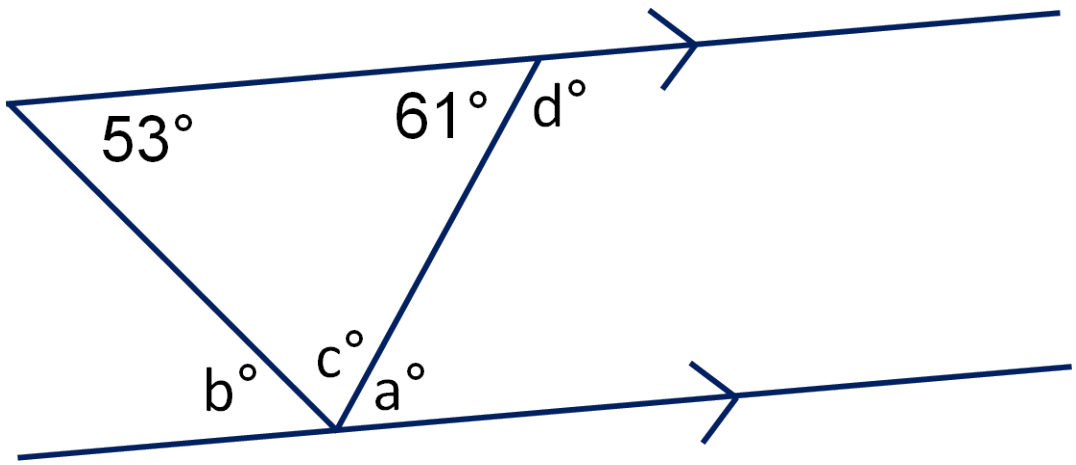


Answer1

Question 2

Look at the following diagram and work out the value of a.

(Just write the number)

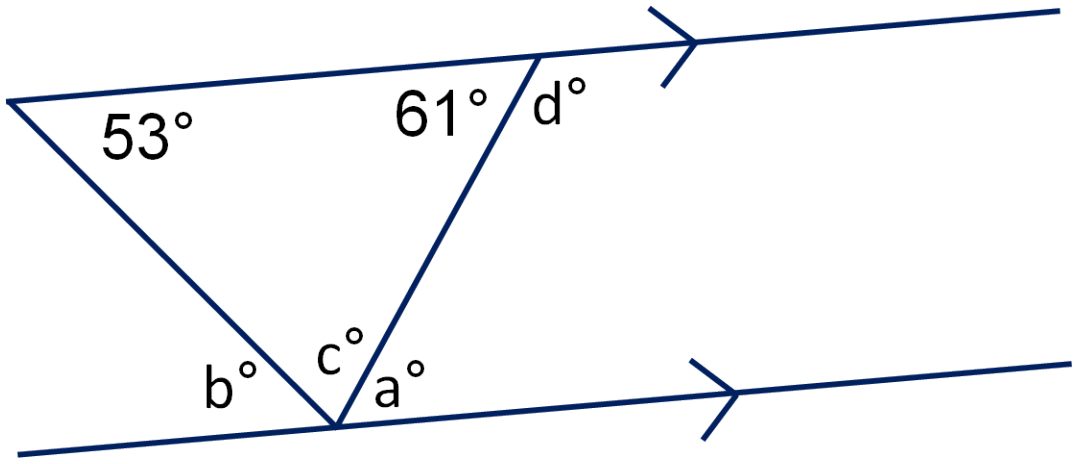


Answer1

Question 3

Look at the following diagram and work out the value of b.

(Just write the number)

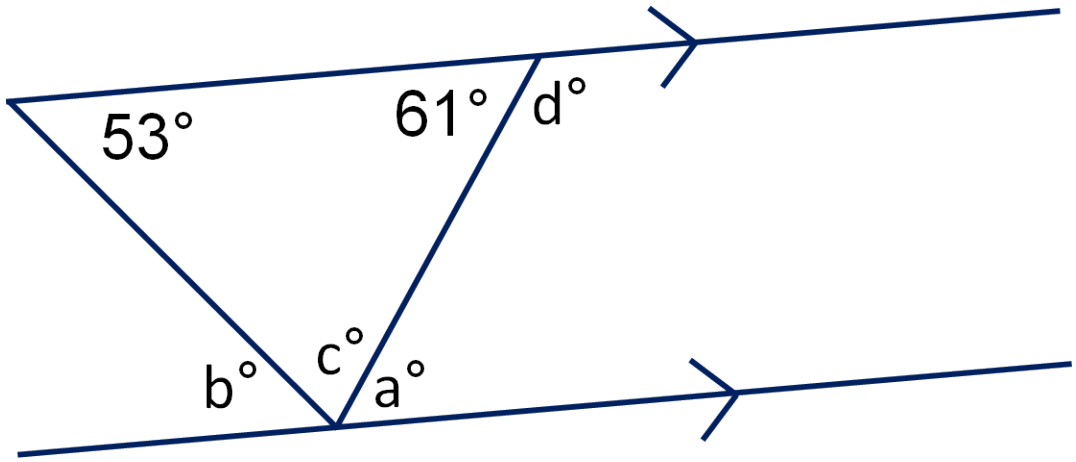


Answer1

Question 4

Look at the following diagram and work out the value of d.

(Just write the number)

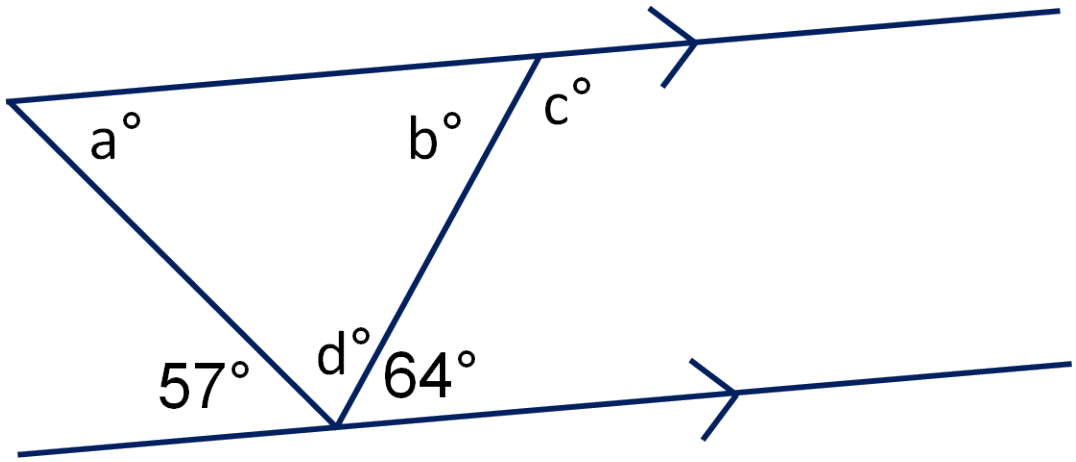


Answer1

Question 5

Look at the following diagram and work out the value of a.

(Just write the number)

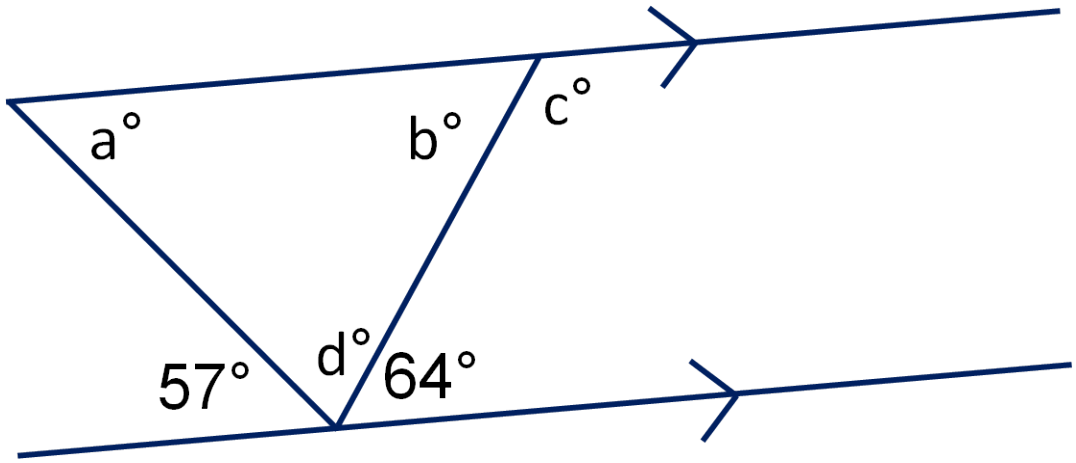


Answer1

Question 6

Look at the following diagram and work out the value of b.

(Just write the number)

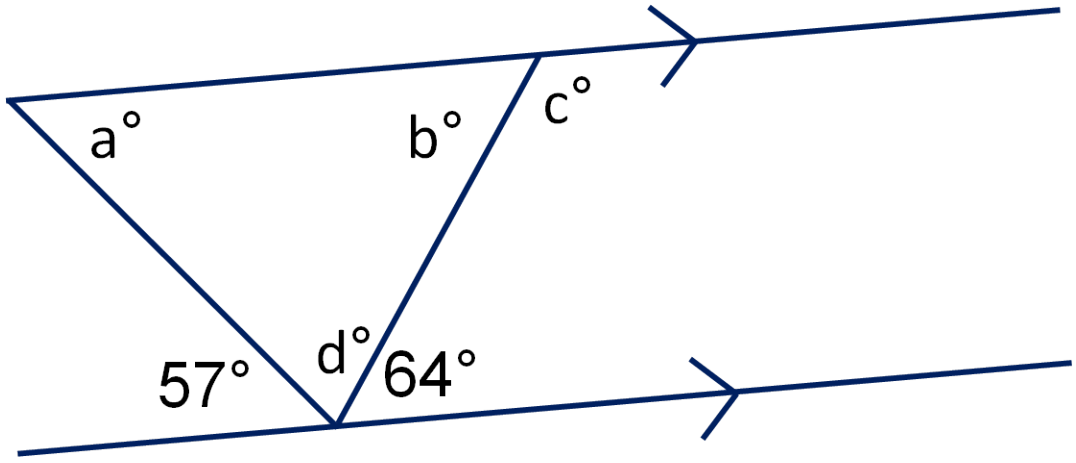


Answer1

Question 7

Look at the following diagram and work out the value of c.

(Just write the number)

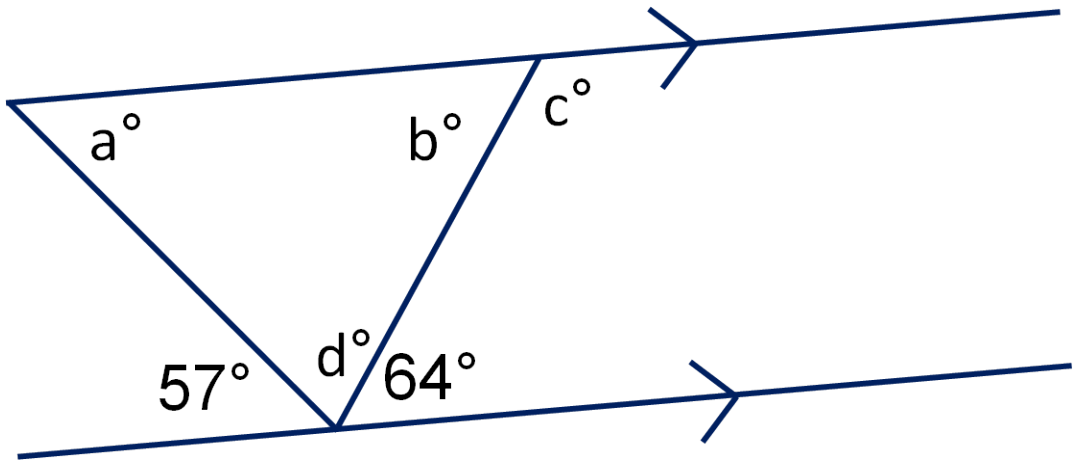


Answer1

Question 8

Look at the following diagram and work out the value of d.

(Just write the number)

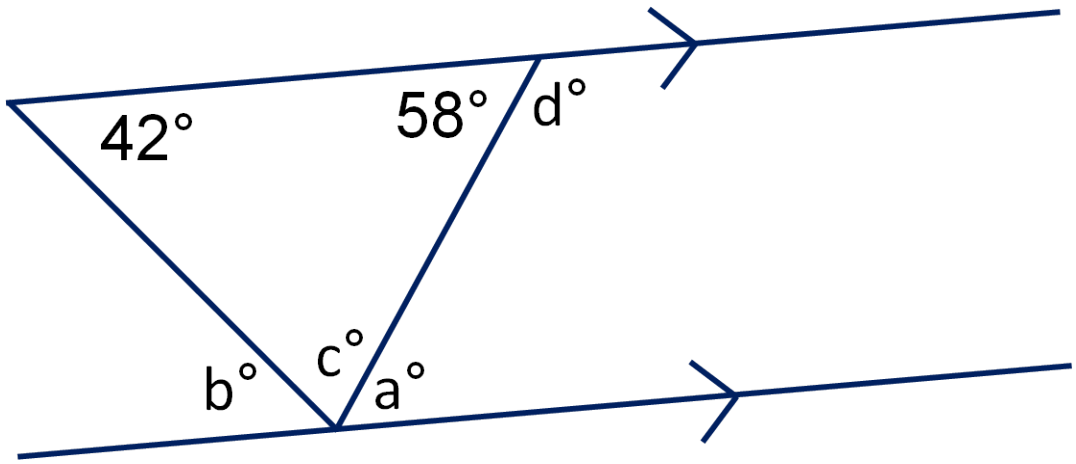


Answer1

Question 9

Look at the following diagram and work out the value of d.

(Just write the number)

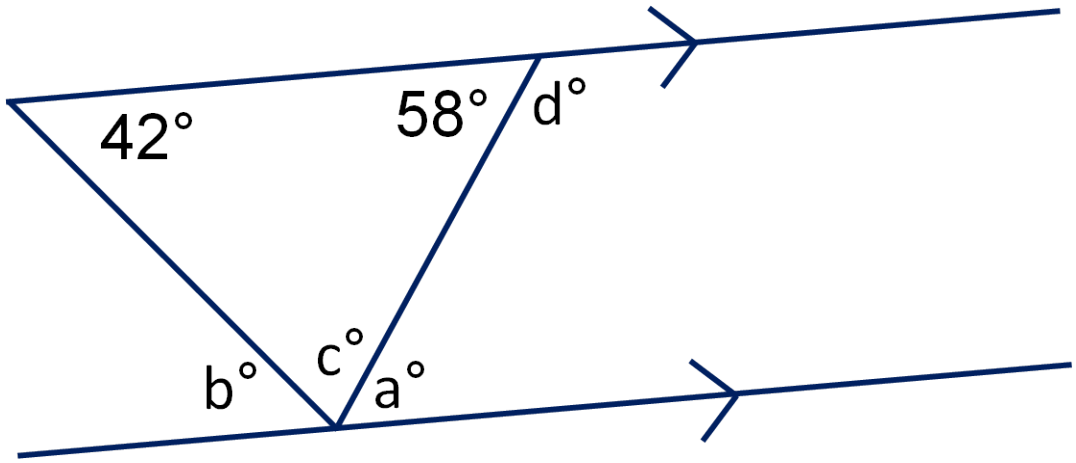


Answer1

Question 10

Look at the following diagram and work out the value of c.

(Just write the number)



Answer1

ANSWERS

Answer 1

Correct Answers

Answer 1 | 66

Answers Explanation

How did you get on? The rule we need to use here is that angles in a triangle add up to 180º 180 - 53 - 61 = 66º

Answer 2

Correct Answers

Answer 1 | 61

Answers Explanation

This time, the rule we need is that alternate angles on parallel lines are equal. If you look at the lines above, you can see a z angle with a 61º angle alternate to angle a. This means that a also equals 61º.

Answer 3

Correct Answers

Answer 1 | 53

Answers Explanation

Once again, we need the alternate angles on parallel lines rule. The angle that is alternate to b is 53º, so b is also 53º.

Answer 4

Correct Answers

Answer 1 | 119

Answers Explanation

How are you getting on? This question needs us to use the angles on a straight line rule. Angles on a straight line add up to 180º. 180 - 61 = 119º.

Answer 5

Correct Answers

Answer 1 | 57

Answers Explanation

Are you getting the hang of these rules yet? This time, we need the alternate angle on parallel lines rule. Which angle is alternate to a? It's 57º, so that is also the value of a.

Answer 6

Correct Answers

Answer 1 | 64

Answers Explanation

You're halfway through already! This time, we use the alternate angles are equal rule. The angle that is alternate to b is 64º - so b also equals 64º

Answer 7

Correct Answers

Answer 1 116

Answers Explanation

There were several ways that we could have worked this one out. We could have found b first (alternate angles mean that b is 64º) and then used the angles on a straight line equal 180º : 180 - 64 = 116º. Or we could have used the rule that supplementary angles add up to 180º. These are pairs of angles that are in between parallel lines in the shape of a letter c, in this case. This means that means that the angle that is supplementary to c is 64º. 180 - 64 = 116º

Answer 8

Correct Answers

Answer 1 59

Answers Explanation

To find this one, we need to use the rule that angles on a straight line add up to 180. 180 - 57 - 64 = 59. So, angle d is 59º.

Answer 9

Correct Answers

Answer 1 | 122

Answers Explanation

Once again, we use the rule that angles on a straight line add up to 180. 180 - 58 = 122º.

Answer 10

Correct Answers

Answer 1 | 80

Answers Explanation

Did you spot the triangle in this one? Angles in a triangle add up to 180º. 180 - 42 - 58 = 80 So, angle c = 80º. Great work - how do you feel about working out angles now?