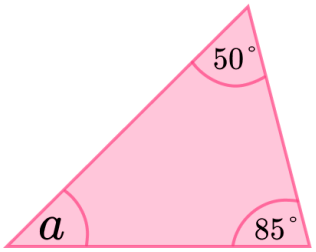
Angles in a Triangle - Worksheet

Skill

Group A - Missing angles in a triangle

Find the angles marked with letters in the following triangles:

1)



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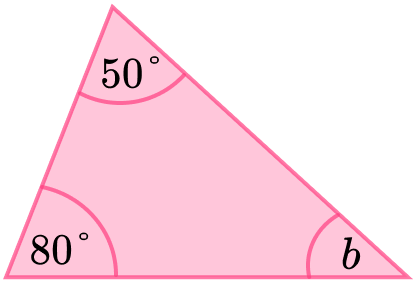
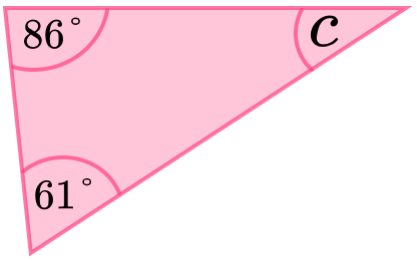
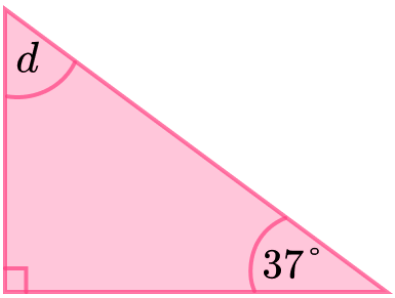


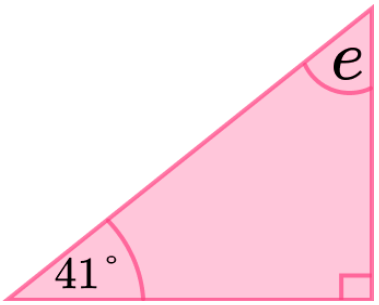
3)



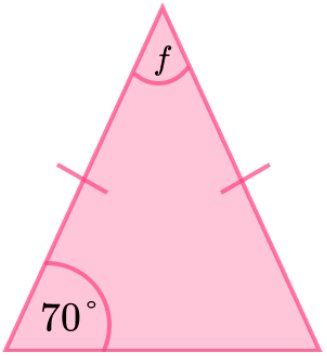
4)



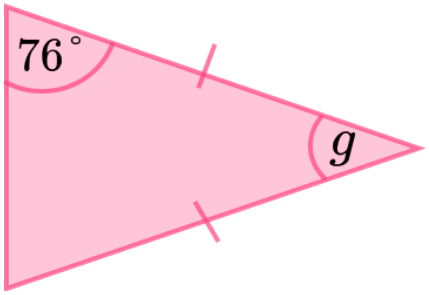
5)



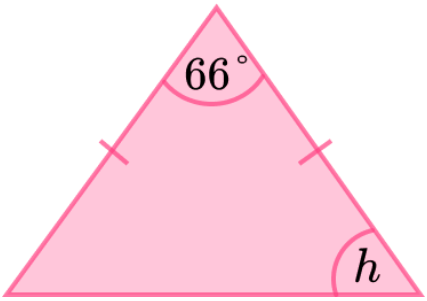
6)



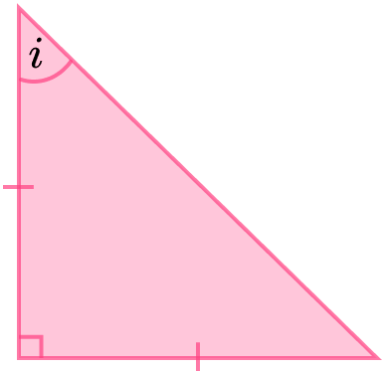
7)



8)



9)

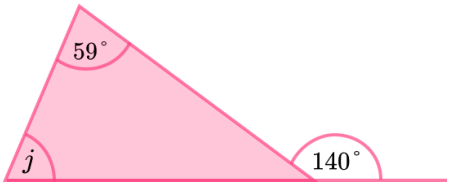


Angles in a Triangle - Worksheet

Group B - Using angle facts

Find the marked angles in the following triangles:

1)



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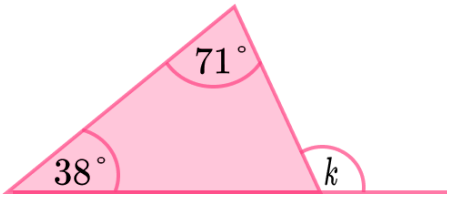
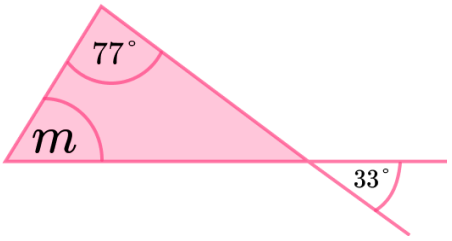


3)



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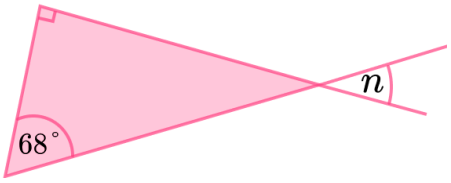

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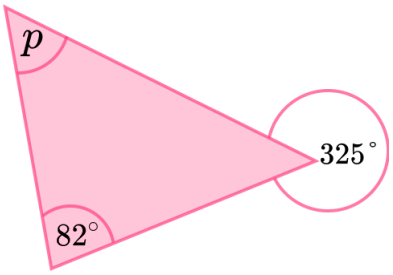
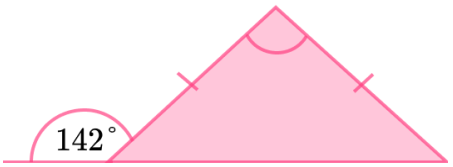


6)



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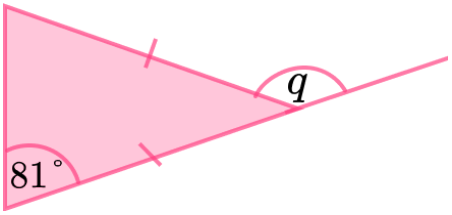

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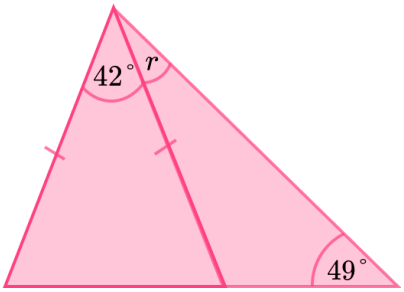
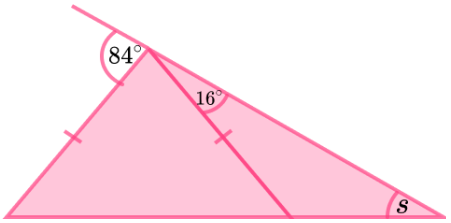


9)

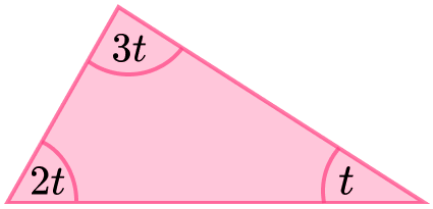


Angles in a Triangle - Worksheet

Group C - Angle algebra

Write and solve the equations for the unknowns in the following questions:

1)



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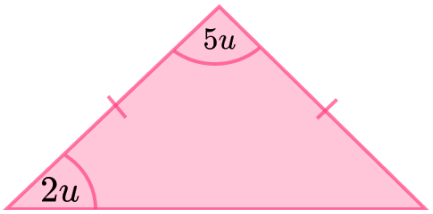
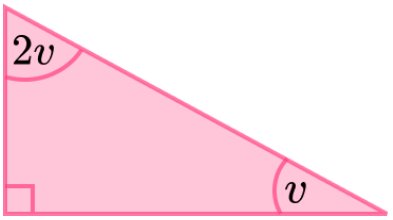
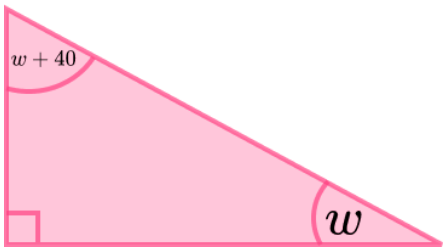


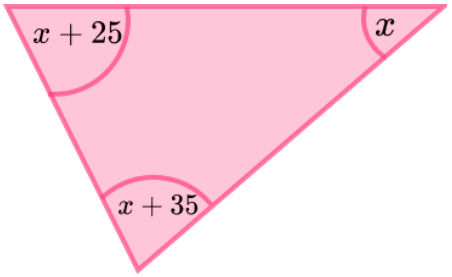
3)



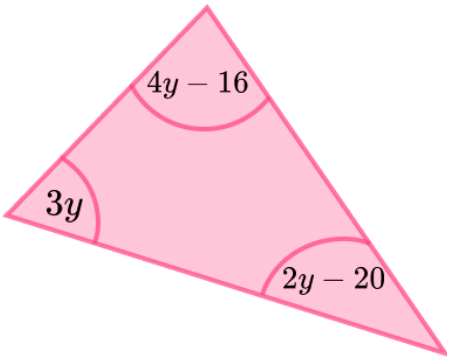
4)



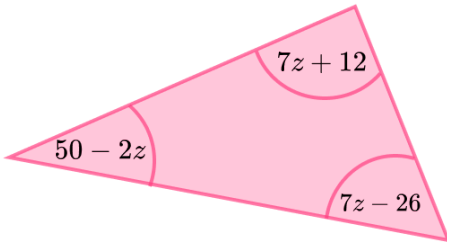
5)



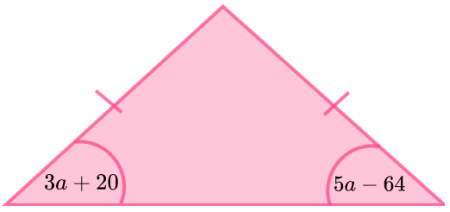
6)



7)



8)



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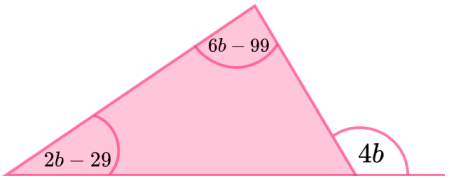
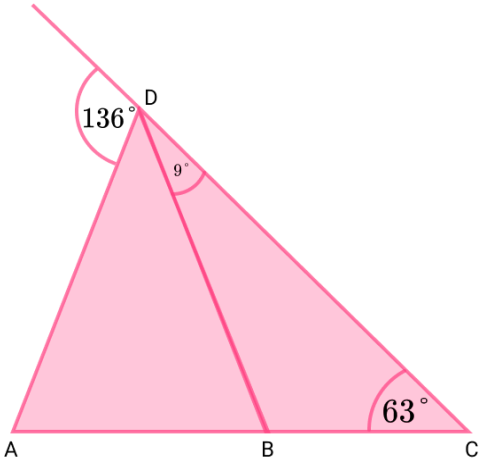


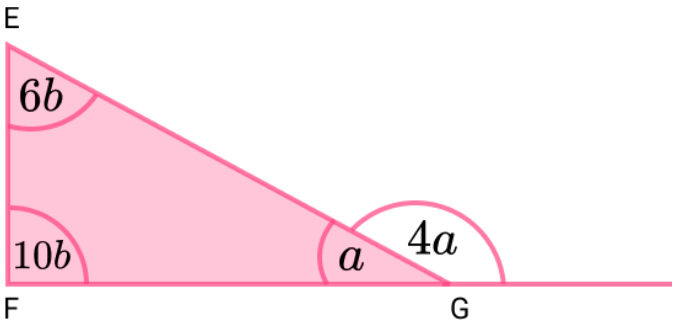
Angles in a Triangle - Worksheet

Applied

1) Is triangle ABD an isosceles triangle?



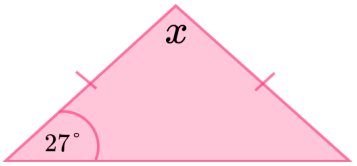
2) Show that triangle EFG is a right angled triangle.



3) PQR is an isosceles triangle. When angle P is $50°$, there are three possible values for angle Q. Write down the three possible values.

Angles in a Triangle - Exam Questions

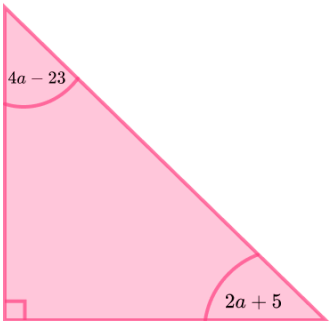
1) Find the size of angle x.



.....
(2 marks)

---

2) **(a)** Write an equation involving a.



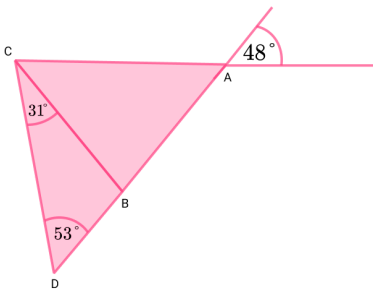
.....
(2)

(b) Find the size of the smallest angle in the triangle.

.....
(2)
(4 marks)

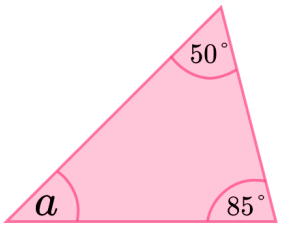
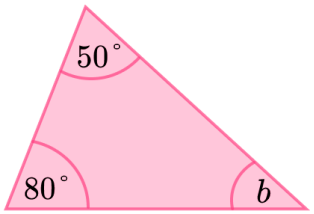
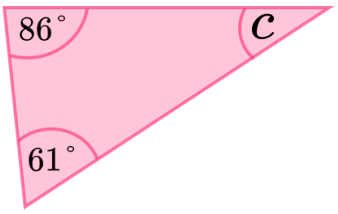
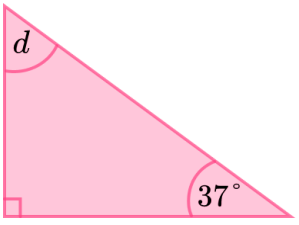
---

3) Show that triangle ABC is an isosceles triangle. You must give a reason for each stage of your working.



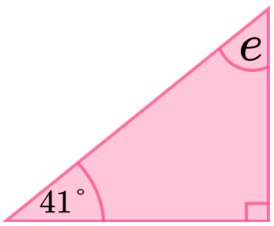
.....
(4 marks)

Angles in a Triangle - Answers

	Question	Answer
	Skill Questions	
Group A	Find the angles marked with letters in the following triangles: **1)**  **2)**  **3)**  **4)**  	**1)** 45° **2)** 50° **3)** 33° **4)** 53°

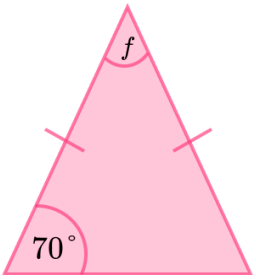
Angles in a Triangle - Answers

5)



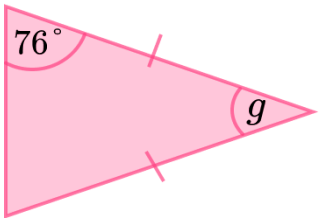
5) 49°

6)



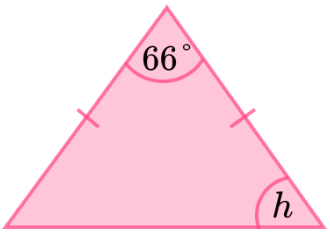
6) 40°

7)



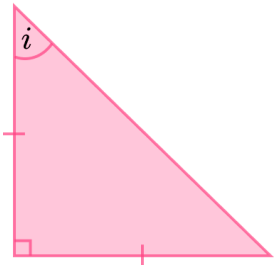
7) 28°

8)



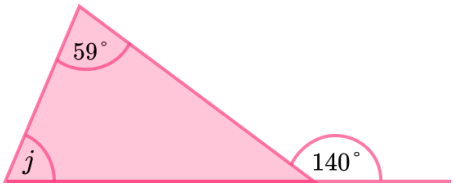
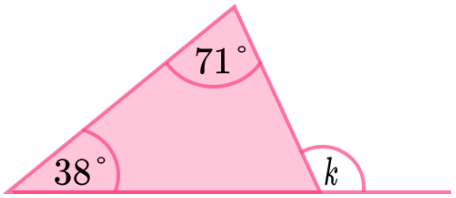
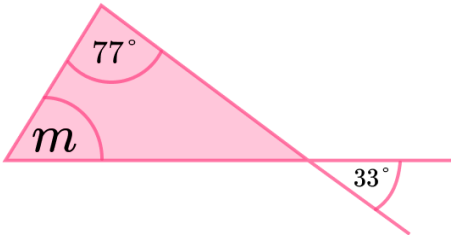
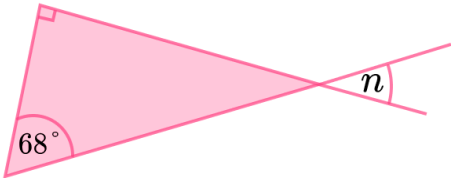
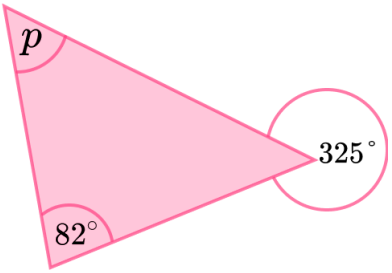
8) 57°

9)

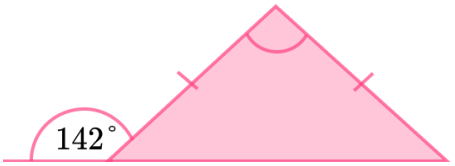
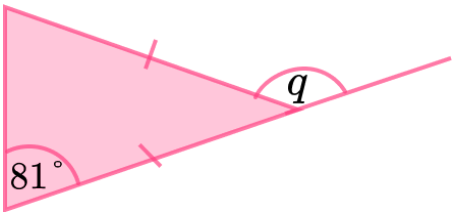
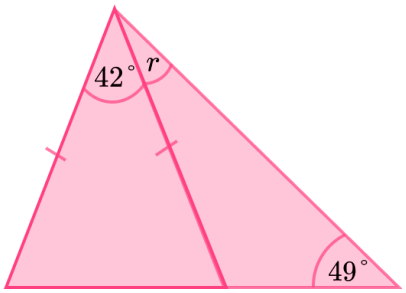
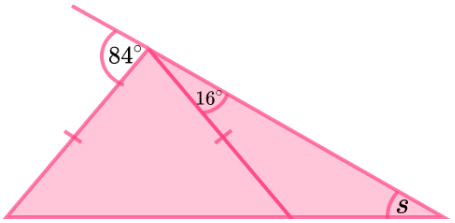


9) 45°

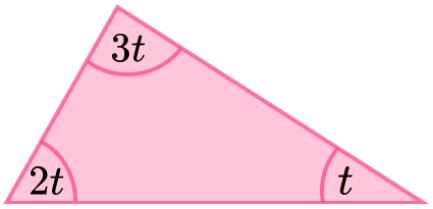
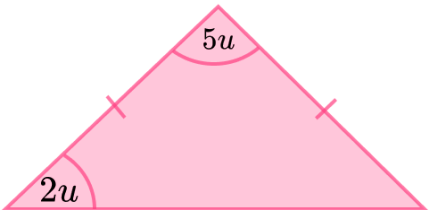
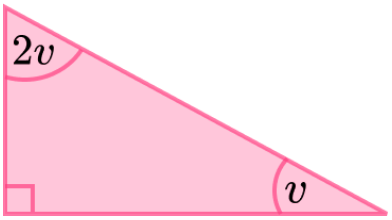
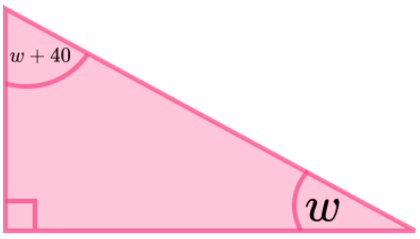
Angles in a Triangle - Answers

Group B	Find the marked angles in the following triangles: **1)**  **2)**  **3)**  **4)**  **5)**  	**1)** 81° **2)** 109° **3)** 70° **4)** 22° **5)** 63°

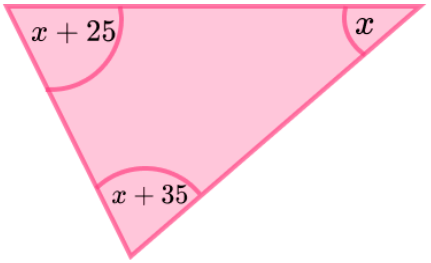
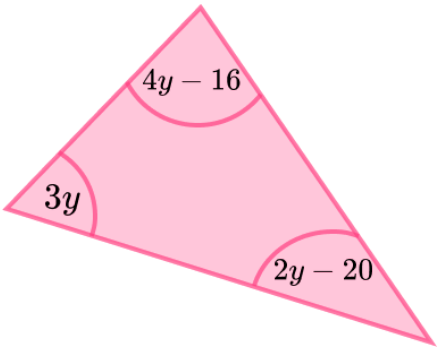
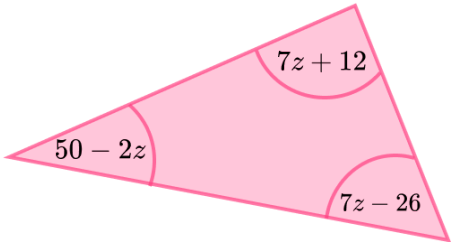
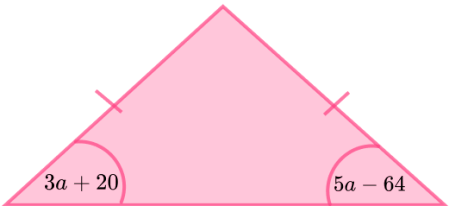
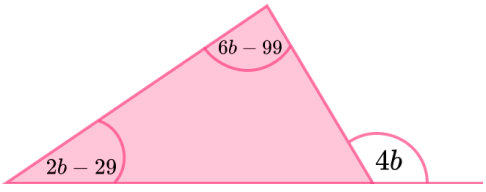
Angles in a Triangle - Answers

Group B	**6)**  **7)**  **8)**  **9)**  	**6)** 104° **7)** 162° **8)** 20° **9)** 34°

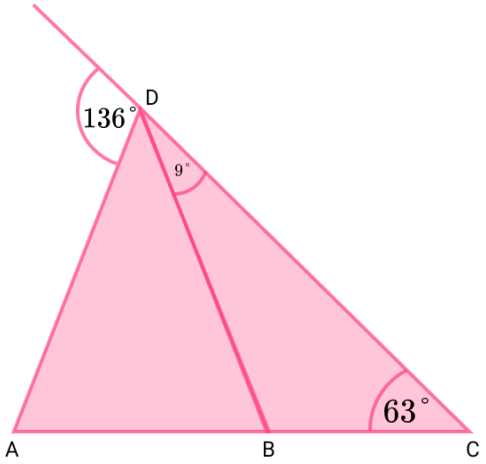
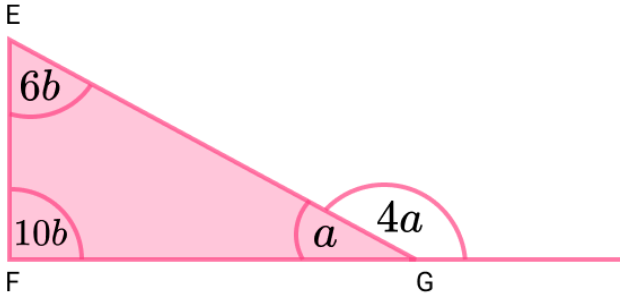
Angles in a Triangle - Answers

Group C	Write and solve the equations for the unknowns in the following questions: **1)**  **2)**  **3)**  **4)**  	**1)** $6t = 180,\ t = 30°$ **2)** $9u = 180,\ u = 20°$ **3)** $3v + 90 = 180,\ v = 30°$ **4)** $2w + 130 = 180,\ w = 25°$

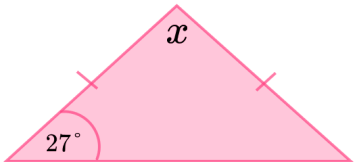
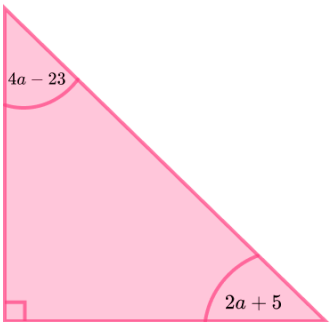
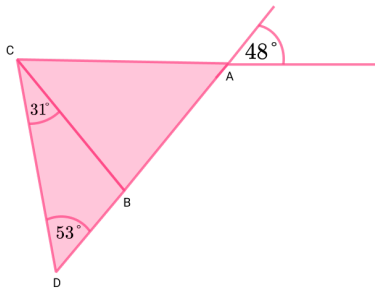
Angles in a Triangle - Answers

Group C	**5)** 	**5)** $3x + 60 = 180$, $x = 40°$
	6) 	**6)** $9y - 36 = 180$, $y = 24°$
	7) 	**7)** $12z + 36 = 180$, $z = 12°$
	8) 	**8)** $3a + 20 = 5a - 64$, $a = 42°$
	9) 	**9)** $4b + 52 = 180$, $b = 32°$

Angles in a Triangle - Answers

	Question	Answer
	Applied Questions	
1)	Is triangle ABD an isosceles triangle? 	No Angles $= 35°,\ 72°$, and $73°$
2)	Show that triangle EFG is a right angled triangle. 	$4a + a = 180$ $5a = 180$ $a = 36°$ $180 - 36 = 144$ $10b + 6b = 144$ $16b = 144$ $b = 9°$ Therefore $10b = 90°$ so EFG is a right angled triangle.
3)	PQR is an isosceles triangle. When angle P is $50°$, there are three possible values for angle Q. Write down the three possible values.	Angles $= 50°,\ 80°$, and $65°$

Angles in a Triangle - Mark Scheme

	Question	Answer	
	Exam Questions		
1)	Find the size of angle x. 	$27 \times 2 = 54$ $180 - 54 = 126°$	**(2)**
2) (a)	Write an equation involving a. 	**(a)** $4a - 23 + 2a + 5 + 90$ $6a + 72 = 180°$	**(2)**
(b)	Find the size of the smallest angle in the triangle.	**(b)** $6a = 108$ $a = 18°$ $2 \times 18 + 5 = 41^{o}$	**(2)**
3)	Show that triangle ABC is an isosceles triangle. You must give a reason for each stage of your working. 	Angle $BAC = 48°$ (opposite angles) Angle $CBD = 180 - 53 - 31 = 96°$ (angles in a triangle $= 180°$) Angle $BCA = 180 - 96 - 48 = 48°$ (angles in a triangle $= 180°$) 2 angles equal therefore isosceles triangle.	**(4)**