Interior angles of a triangle

Mana Maths

Te reo Māori terms

tapatoru
triangle
Open in Te Aka

tapatoru waerite
isosceles triangle
Open in Te Aka

tapatoru rite
equilateral triangle
Open in Te Aka

koki roto
interior angle
Open in Te Aka

Interior angles of a triangle — Foundation

1. A triangle has angles $63°$, $55°$, and x. Find x.

2. A triangle has angles $48°$, x, and $61°$. Find x.

3. A triangle has angles $72°$, x, and $38°$. Find x.

4. A triangle has angles x, $44°$, and $50°$. Find x.

5. A triangle has angles $67°$, $41°$, and x. Find x.

6. A triangle has angles $35°$, x, and $66°$. Find x.

7. An isosceles triangle has angles $74°$, $74°$, and x. Find x.

8. An isosceles triangle has one angle of $32°$ at the top and two equal base angles. Find each base angle.

9. An equilateral triangle has three equal interior angles. Find one angle.

10. A triangle has angles $90°$, $35°$, and x. Find x.

11. A triangle has angles $28°$, x, and $102°$. Find x.

12. True or false: the interior angles of every triangle add to $180°$.

13. Can a triangle have angles $80°$, $70°$, and $40°$? Explain briefly.

14. Complete the rule: the interior angles of a triangle add to $180°$.

Interior angles of a triangle — Proficient

1. A triangle has angles $(x + 10)°$, $60°$, and $70°$. Find x.

2. A triangle has angles $46°$, $(y + 18)°$, and $66°$. Find y.

3. A triangle has angles $2a°$, $80°$, and $60°$. Find a.

4. A triangle has angles $52°$, $b°$, and $(b + 14)°$. Find b.

5. A triangle has angles $(c + 9)°$, $54°$, and $c°$. Find c.

6. A triangle has angles $d°$, $d°$, and $64°$. Find d.

7. An isosceles triangle has equal base angles. The top angle is $44°$. Find each base angle.

8. An isosceles triangle has equal sides and one base angle of $68°$. Find the other two angles.

9. A triangle has angles in the ratio $2 : 3 : 4$. Find the three angles.

10. A triangle has angles in the ratio $1 : 1 : 2$. Is it possible? Explain briefly.

11. A right-angled triangle has one acute angle of $37°$. Find the other acute angle.

12. One angle in a triangle is twice another. The third angle is $45°$. Find all three angles if the two related angles are consecutive multiples of the same amount.

Interior angles of a triangle — Excellence

1. A triangle has angles $(2x + 8)^\circ$, $(x + 16)^\circ$, and 60°. Find x.

2. A triangle has angles $(3y - 4)^\circ$, 74°, and $(y + 10)^\circ$. Find y.

3. A triangle has angles $(a + 20)^\circ$, a°, and $(2a - 15)^\circ$. Find a.

4. A triangle has angles b°, b°, and $(b + 12)^\circ$. Find b.

5. An isosceles triangle has a vertex angle of $(3m + 12)^\circ$ and each base angle is $(m + 18)^\circ$. Find m.

6. A triangle has angles in the ratio $3 : 4 : 8$. Find the angles and decide whether the triangle is acute, right, or obtuse.

7. Two angles in a triangle are equal. The third angle is 26° less than one of the equal angles. Find all three angles.

8. A triangle has angles $(x + 5)^\circ$, $(2x - 15)^\circ$, and $(3x + 10)^\circ$. Find x.

9. A student says an isosceles triangle can have angles 50°, 50°, and 90°. Explain the mistake.

10. Can a triangle have two obtuse interior angles? Explain using the angle-sum rule.

11. A right-angled triangle has one acute angle double the other. Find the two acute angles.

12. An isosceles triangle has equal base angles. The vertex angle is one third of the sum of the two base angles. Find all three angles.

13. One angle of a triangle is 15° greater than another, and the third angle is twice the smallest angle. Find all three angles.

14. A triangle has angles in the ratio $5 : 5 : 8$. Find the angles and name the triangle using angle language.

15. Write your own triangle-angle question with one algebraic angle and two numeric angles. Then solve it.

16. Explain why every equilateral triangle is also isosceles using its interior angles.