Angles around a point

Mana Maths

Te reo Māori terms

koi
point
Open in Te Aka

hurihanga
full revolution
Open in Te Aka

tohu paetahi
degree
Open in Te Aka

koki hāngai
angle
Open in Te Aka

Angles around a point — Foundation

1. Angles around a point are $110°$, $140°$, and x. Find x.

2. Angles around a point are $95°$, $125°$, and x. Find x.

3. Angles around a point are $150°$, $80°$, and x. Find x.

4. Angles around a point are $70°$, $100°$, $110°$, and x. Find x.

5. Angles around a point are $85°$, $95°$, $100°$, and x. Find x.

6. Angles around a point are $90°$, $120°$, $60°$, and x. Find x.

7. Angles around a point are $130°$, $150°$, and x. Find x.

8. Angles around a point are $72°$, $88°$, $95°$, and x. Find x.

9. Three angles around a point are equal. Find each angle.

10. Four angles around a point are equal. Find each angle.

11. One angle around a point is $145°$. The other two angles are equal. Find each equal angle.

12. A student says the angles around a point add to $180°$. Write the correct total.

13. Angles around a point are $98°$, $121°$, and x. Is x acute, right, obtuse, or reflex? Find it.

14. Angles around a point are $40°$, $40°$, $140°$, and x. Find x.

Angles around a point — Proficient

1. Angles around a point are x, $140°$, and $105°$. Find x.

2. Angles around a point are $2x$, $95°$, and $145°$. Find x.

3. Angles around a point are $x + 20°$, $110°$, and $150°$. Find x.

4. Angles around a point are x, $2x$, $70°$, and $110°$. Find x.

5. Angles around a point are $x + 15°$, x, $80°$, and $95°$. Find x.

6. Angles around a point are $3x$, x, $75°$, and $85°$. Find x and all four angles.

7. Three angles around a point are in the ratio $2 : 3 : 4$. Find all three angles.

8. Four angles around a point are in the ratio $1 : 2 : 2 : 3$. Find all four angles.

9. Two angles around a point are equal. The third angle is $96°$ bigger than each of the equal angles. Find all three angles.

10. Angles around a point are x, $x + 30^\circ$, $x + 50^\circ$, and $x + 100^\circ$. Find x.

11. A full turn is shared into five equal angles around a point. Find one angle and state whether it is acute, right, obtuse, or reflex.

12. A student writes $120^\circ + 130^\circ$ and says the diagram is correct. Explain why it is impossible.

Angles around a point — Excellence

1. Angles around a point are $2x + 10°$, x, and $140°$. Find x and justify your method.

2. Angles around a point are $3x$, $x + 20°$, and $100°$. Find x and all three angles.

3. Angles around a point are x, $x + 30°$, $2x$, and $90°$. Find x.

4. Angles around a point are $2x - 10°$, x, $x + 20°$, and $110°$. Find x and all four angles.

5. Three angles around a point are in the ratio $3 : 5 : 7$. Find the largest angle.

6. Four angles around a point are in the ratio $2 : 3 : 4 : 9$. Find all four angles.

7. One angle is twice another. A third angle is $40°$ more than the smaller angle. The three angles make a full turn. Find all three angles.

8. Two equal angles and one reflex angle make a full turn. The reflex angle is $210°$. Find each equal angle.

9. Angles around a point are x, $x + 25°$, $x + 55°$, and $2x$. Find x.

10. A student says: if one angle is 220°, the other two equal angles must each be 80°. Explain the mistake and give the correct angles.

11. A point is split into six equal angles. Another point is split into four equal angles. Find the difference between one angle from the first point and one angle from the second point.

12. Four angles around a point are 78°, x, x, and $x + 24^\circ$. Find x.

13. Three angles around a point are consecutive multiples of 15°. Their total is a full turn. Find the three angles.

14. A full turn is divided into three angles. The second angle is 35° more than the first. The third angle is twice the first. Find all three angles.

15. Explain why any claim that the angles around a point total more than 360° must be wrong if the angles do not overlap.

16. Create your own set of four different angles around a point that total $360°$. One must be reflex.