A Tale of Three Intersecting Lines

Standard difficulty · 20 questions · 40 marks · Time: 28 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. Can 4 cm, 8 cm and 16 cm be the sides of a triangle?

(a) Only if it is right-angled **(b)** Yes
(c) Only if two sides are equal **(d)** No

2. Two angles of a triangle are 120° and 33°. The third angle is:

(a) 27° **(b)** 207° **(c)** 87° **(d)** 37°

3. The three angles of a triangle add up to:

(a) 270° **(b)** 90° **(c)** 180° **(d)** 360°

4. The two interior angles opposite an exterior angle of a triangle are 34° and 51°. The exterior angle is:

(a) 17° **(b)** 146° **(c)** 95° **(d)** 85°

5. A triangle has angles 81°, 54°, 45°. It is:

(a) acute-angled **(b)** equilateral **(c)** right-angled **(d)** obtuse-angled

6. The angle between the equal sides of an isosceles triangle is 150°. Each base angle is:

(a) 150° **(b)** 30° **(c)** 75° **(d)** 15°

7. Can 3 cm, 4 cm and 8 cm be the sides of a triangle?

(a) Only if drawn carefully **(b)** Yes
(c) Only if one angle is 90° **(d)** No

8. Two sides of a triangle are 8 cm and 16 cm. Which of these could be the third side?

(a) 30 cm **(b)** 8 cm **(c)** 11 cm **(d)** 24 cm

Section B — Short answer — 8 × 2 = 16 marks

9. The angles of a triangle are x, x + 29° and x + 34°. Find x and the three angles.

10. An exterior angle of a triangle is 100° and one of the opposite interior angles is 74°. Find the other opposite interior angle and the angle next to the exterior angle.

11. The angles of a triangle are in the ratio 4 : 7 : 1. Find them.

12. Two sides of a triangle are 16 cm and 19 cm. Between which two lengths must the third side lie?

13. Each base angle of an isosceles triangle is 82°. Find the third angle, and say whether the triangle is acute, right or obtuse.

14. One acute angle of a right-angled triangle is 62°. Find the other acute angle.

15. Which of these can be the sides of a triangle? (i) 10, 6, 20 (ii) 9, 10, 19 (iii) 11, 5, 16 (all in cm)

16. In triangle PQR, ∠P = 70° and ∠Q = 58°. The side QR is extended beyond R. Find the exterior angle at R.

Section C — Word problems — 4 × 4 = 16 marks

17. Isha has three fence pieces of 7 m, 17 m and 18 m. Can they make a triangular pen? If yes, what is its perimeter?

18. A roof frame is an isosceles triangle with the two equal sloping beams meeting at 88° at the top. What angle does each beam make with the floor beam?

19. A ramp rises from the ground, making 18° with it, and meets a vertical wall at a right angle to the ground. What angle does the ramp make with the wall?

20. Village A is 13 km from village B, and B is 14 km from village C. The direct road from A to C is 16 km. How much shorter is the direct road than going through B?

Want another sheet on this chapter? In the Ambiful Worksheets app every sheet is new, with its answer key, and your child never gets the same question twice.
Scan the code to get the free app, or open **worksheets.ambiful.com/get**

Answer key

A Tale of Three Intersecting Lines · AW-7M-TRI-2026-V1 · For parents — fold back or tear off before handing the sheet to your child.

Q	Answer	Working
1	**(d) No**	4 + 8 is not more than 16
2	**(a) 27°**	180° − 153°
3	**(c) 180°**	—
4	**(d) 85°**	34° + 51°
5	**(a) acute-angled**	the largest angle is 81°
6	**(d) 15°**	(180° − 150°) ÷ 2
7	**(d) No**	3 + 4 is less than 8
8	**(c) 11 cm**	the third side is between 8 cm and 24 cm
9	**x = 39°; 39°, 68°, 73°**	3x + 63° = 180°; 3x = 117°
10	**26°; 80°**	100° − 74°; 180° − 100°
11	**60°, 105°, 15°**	180° ÷ 12 = 15°
12	**more than 3 cm and less than 35 cm**	19 − 16 and 16 + 19
13	**16°; acute**	180° − 2 × 82°
14	**28°**	90° − 62°
15	**(i) no, (ii) no, (iii) no**	check that the two shorter sides add up to more than the longest
16	**128°**	it equals the sum of the two opposite interior angles
17	**Yes; 42 m**	every two pieces together are longer than the third
18	**46°**	(180° − 88°) ÷ 2
19	**72°**	the angles of the triangle add to 180°: 180° − 90° − 18°
20	**11 km shorter**	13 + 14 − 16; the direct side is always shorter