½ab sin C or ½bh?

Area of a triangle. Give each area to 3 significant figures. Diagrams are not drawn accurately.

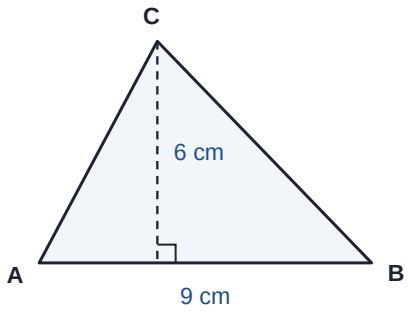
Name _____

Date _____

Part A: one of each

Each question tells you which formula to use.

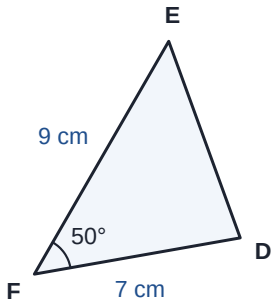
1 ½BH



Find the area of the triangle.

Answer: _____

2 ½AB SIN C



Find the area of the triangle.

Answer: _____

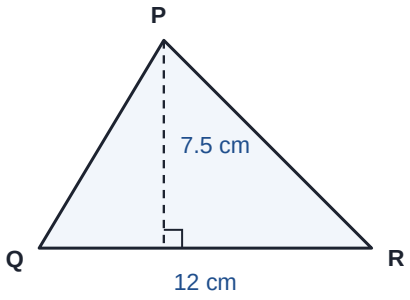
Part B: you decide

½bh
Use it when you know a side (the base) and the perpendicular height to it. The height meets the base, or the base extended, at a right angle.

½ab sin C
Use it when you know two sides and the angle *between* them (the included angle).

For each question, tick the method you need, then work out the answer. Each answer matches a letter in the code table. The letters from questions 1 to 8, in order, spell a word.

1

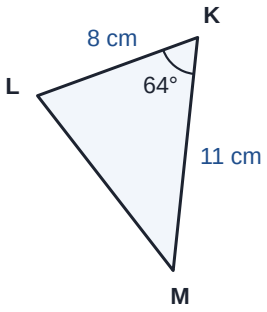


Find the area.

Which method? ☐ ½ab sin C ☐ ½bh

Answer: _____ Letter: ___

2

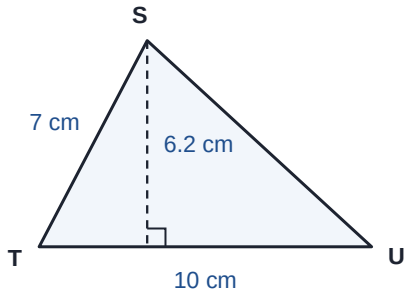


Find the area.

Which method? ☐ ½ab sin C ☐ ½bh

Answer: _____ Letter: ___

3

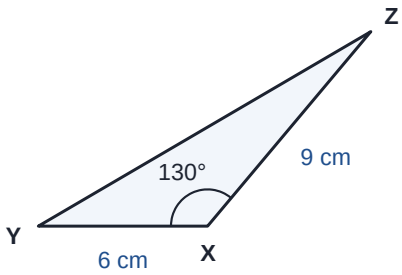


Find the area.

Which method? ☐ ½ab sin C ☐ ½bh

Answer: _____ Letter: ___

4

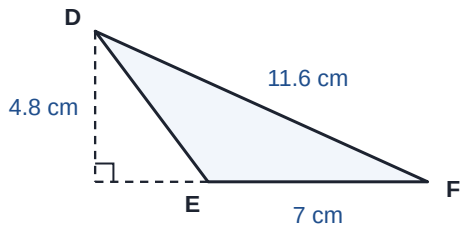


Find the area.

Which method? ☐ ½ab sin C ☐ ½bh

Answer: _____ Letter: ___

5

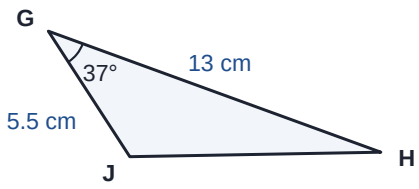


Find the area.

Which method? ☐ ½ab sin C ☐ ½bh

Answer: _____ Letter: ___

6

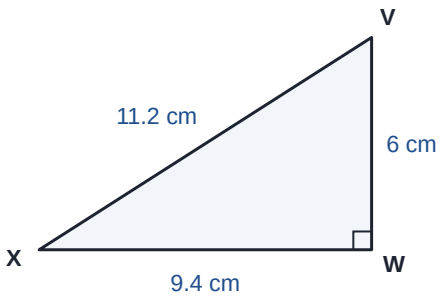


Find the area.

Which method? ☐ ½ab sin C ☐ ½bh

Answer: _____ Letter: ___

7

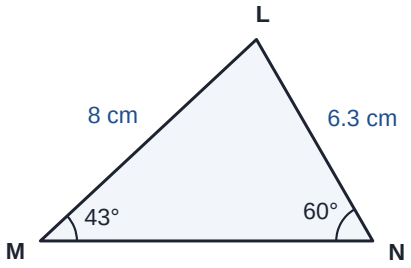


Find the area of the right-angled triangle.

Which method? ☐ ½ab sin C ☐ ½bh

Answer: _____ Letter: ___

8



Find the area. (Which angle do you need?)

Which method? ☐ ½ab sin C ☐ ½bh

Answer: _____ Letter: ___

−17.4	16.8	19.3	20.7	21.5	21.8	24.6	28.2	28.6	31.0	35.0	39.5	40.6	45.0	56.4	90.0
Y	**G**	**I**	**A**	**O**	**J**	**S**	**N**	**L**	**X**	**B**	**E**	**D**	**H**	**P**	**F**

1 2 3 4 5 6 7 8

Answers

Part A

1. $\frac{1}{2} \times 9 \times 6 = 27$ cm²

2. $\frac{1}{2} \times 7 \times 9 \times \sin 50^\circ = 24.1$ cm²

Part B

1. ½bh. $\frac{1}{2} \times 12 \times 7.5 = 45.0$ cm² → **H**

2. ½ab sin C. $\frac{1}{2} \times 8 \times 11 \times \sin 64^\circ = 39.5$ cm² → **E**

3. ½bh. Use the perpendicular height, not the sloping side: $\frac{1}{2} \times 10 \times 6.2 = 31.0$ cm² → **X**

4. ½ab sin C. $\frac{1}{2} \times 6 \times 9 \times \sin 130^\circ = 20.7$ cm² → **A**

5. ½bh. The height falls outside the triangle, but the formula is the same: $\frac{1}{2} \times 7 \times 4.8 = 16.8$ cm² → **G**

6. ½ab sin C. $\frac{1}{2} \times 13 \times 5.5 \times \sin 37^\circ = 21.5$ cm² → **O**

7. ½bh. The two shorter sides are at right angles, so one is the height: $\frac{1}{2} \times 9.4 \times 6 = 28.2$ cm² → **N**

8. ½ab sin C. The angle between the 8 cm and 6.3 cm sides is $180^\circ - 43^\circ - 60^\circ = 77^\circ$.
$\frac{1}{2} \times 8 \times 6.3 \times \sin 77^\circ = 24.6$ cm² → **S**

The word is **HEXAGONS**. Some of the other letters come from common slips: using the sloping side as the height (questions 3 and 5), using cos instead of sin, forgetting the ½, or using one of the marked angles in question 8 instead of the angle between the two sides.