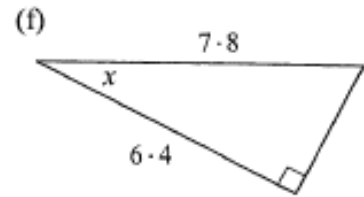
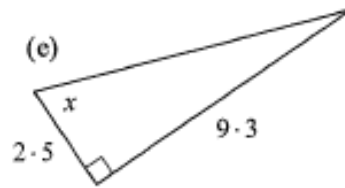
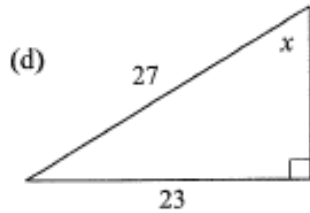
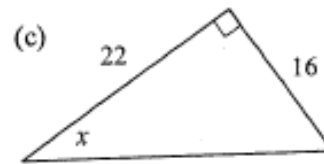
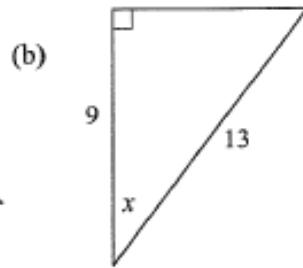
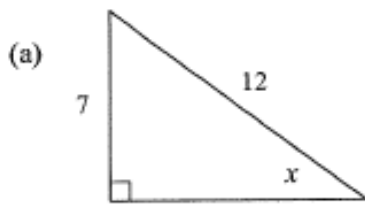


Trigonometry (1)

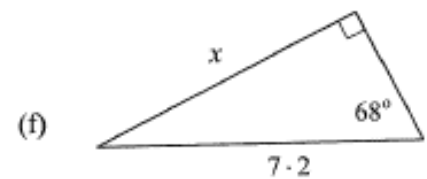
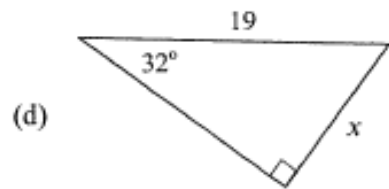
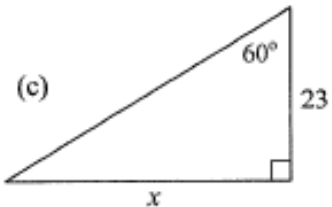
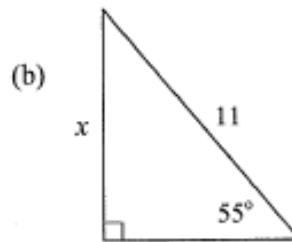
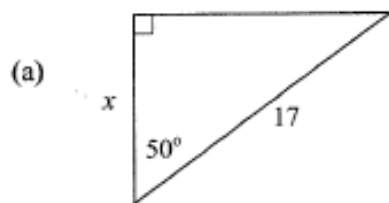
You need a scientific calculator for this worksheet.
Round all answers to 1 d.p. where necessary.



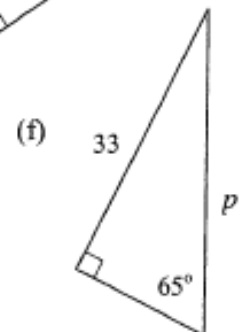
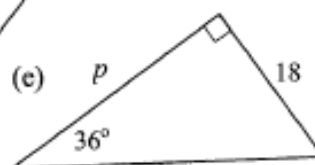
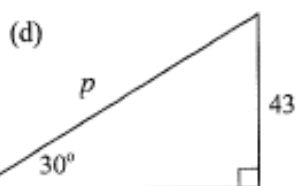
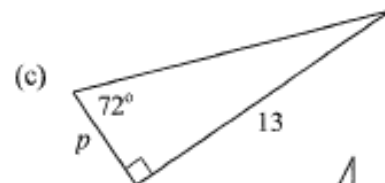
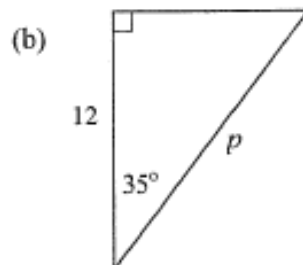
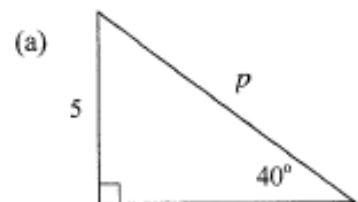
1. Find the size of angle x in each diagram.



2. Calculate the length of the side marked x in each triangle below.



3. Calculate the length of the side marked p in each triangle below.



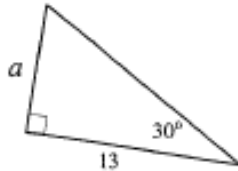
Trigonometry (2) – More Practice

You need a scientific calculator for this worksheet.

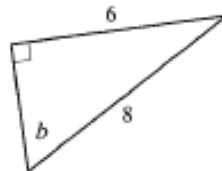


Find the angles and sides marked with letters.

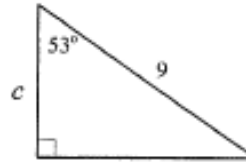
1.



2.



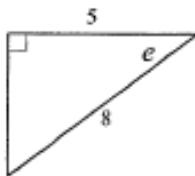
3.



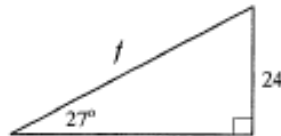
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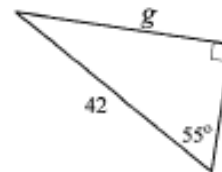
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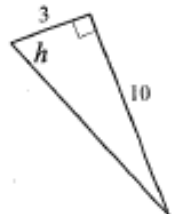
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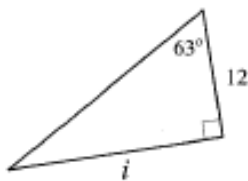
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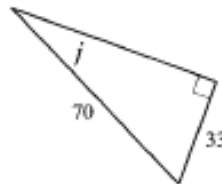
8.



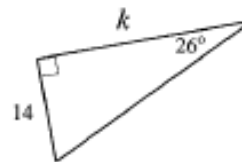
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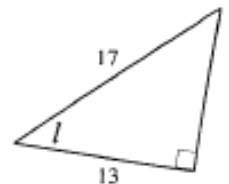
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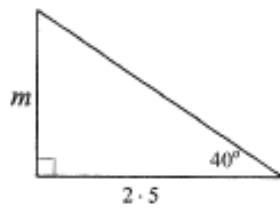
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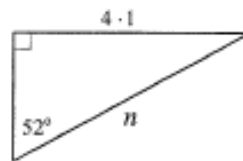
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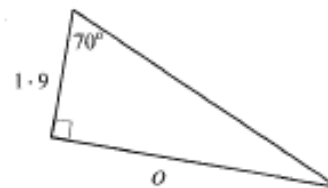
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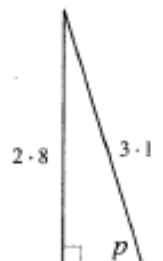
14.



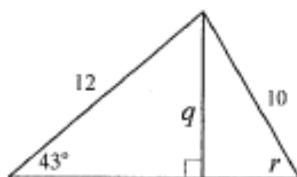
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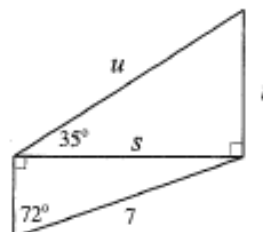
16.



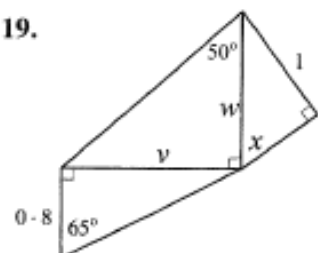
17.



18.



19.

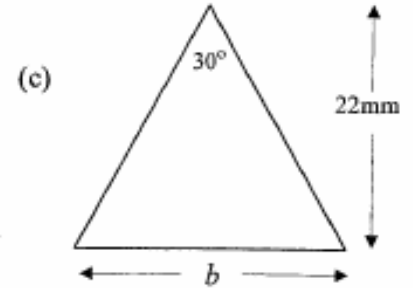
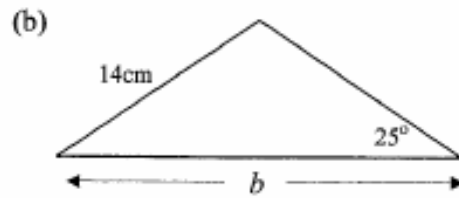
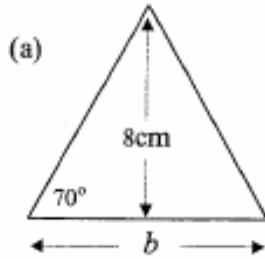


Trigonometry (3) - Isosceles Triangles & Frameworks

You need a scientific calculator for this worksheet.

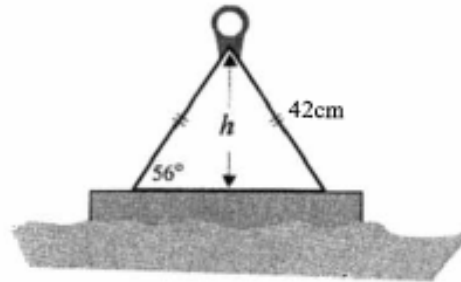


1. Calculate the length of the base, b , of each isosceles triangle below.



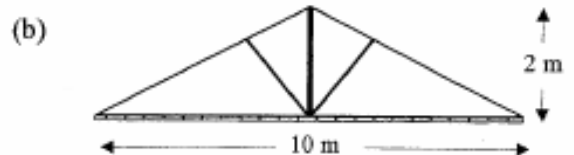
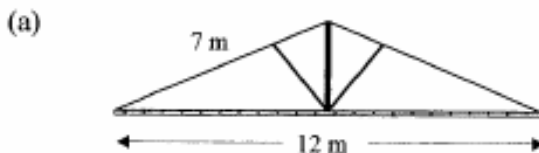
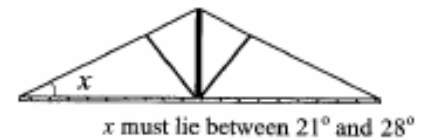
2. The diagram opposite represents a buoy used for tying-up small boats.

Calculate the vertical height (h) of its triangular frame.



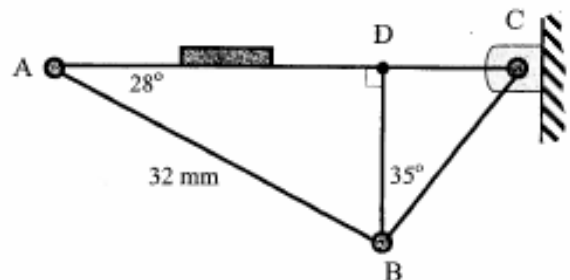
3. To comply with building regulations a roof must have an angle of between 21° and 28° to the horizontal (see diagram).

Which, if any, of the two roofs below comply with the building regulations?



4. The diagram opposite shows part of the framework for a small hinged bracket.

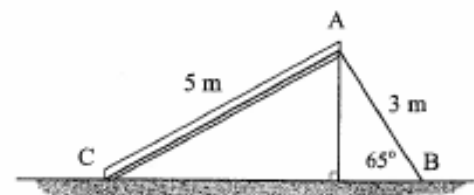
- (a) Calculate the length of DB .
 (b) Hence calculate the length of BC .



5. The diagram opposite represents a playground chute. AC represents the slide and AB the stairs.

A local council ruling states "for a slide to be safe the **maximum** permissible angle between the slide and the ground is 35° ".

Does this diagram represent a "safe" slide?



Trigonometry (4) - Problems



You need a scientific calculator for this worksheet.

Most of the problems below will require you to draw a neat sketch before attempting to answer the question.

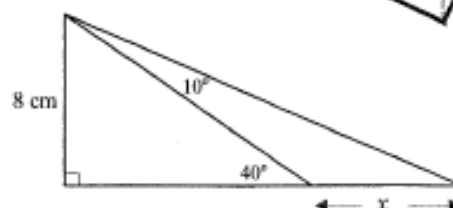
1. A ladder of length 4m rests against a vertical wall so that the base of the ladder is 1.5 m from the wall.
Calculate the angle between the ladder and the ground.
2. A ladder of length 5m leans against a vertical wall so that the base of the ladder is 2m from the wall.
Calculate the angle between the ladder and the wall.
3. A vertical telegraph pole has a wire support of length 9m stretching from the top of the pole to the ground so that the angle between the wire support and the ground is 65° .
How far is the end of the wire support from the base of the pole?
4. A vertical aerial mast has a wire support of length 12m stretching from the top of the mast to the ground so that the angle between the wire support and the ground is 78° .
Calculate the height of the mast.
5. A ladder of length 4.8 m rests against a vertical wall so that it reaches up the wall to a height of 4.3 m.
Calculate the angle between the ladder and the ground.
6. A tall thin tree has a height of 15m. A rope support stretches from the top of the tree to a point on the ground out from the base of the tree.
If the angle between the rope and the ground is 62° , calculate the length of the rope support.
7. From a distance of 20m from the base of a tower the angle of elevation to the top of the tower is 38° . How high is the tower?
8. P is a point 30m from the base of a building. The building has a height of 18m.
Calculate the angle of elevation to the top of the building from P.
9. A girl is flying a kite from a string of length 46m.
The string is taut, and is being held 1m above the ground.
Calculate the height of the kite above the ground if the angle of elevation is 36° between the string and the horizontal.

10. The frame of a bicycle is shown in the diagram opposite.
Find the length of the cross bar, AB.



11. Consider the diagram opposite.

Calculate the length marked x .



Trigonometry (1)

1. (a) $x = 35.7^\circ$ (b) $x = 46.2^\circ$ (c) $x = 36.0^\circ$
(d) $x = 58.4^\circ$ (e) $x = 75.0^\circ$ (f) $x = 34.9^\circ$
2. (a) $x = 10.9$ (b) $x = 9.0$ (c) $x = 39.8$
(d) $x = 10.1$ (e) $x = 8.2$ (f) $x = 6.7$
3. (a) $p = 7.8$ (b) $p = 14.6$ (c) $p = 4.2$
(d) $p = 86.0$ (e) $p = 24.8$ (f) $p = 36.4$

Trigonometry (2) – More Practice

1. $a = 7.5$ 2. $b = 48.6^\circ$ 3. $c = 5.4$ 4. $d = 7.0$ 5. $e = 51.3^\circ$
6. $f = 52.9$ 7. $g = 34.4$ 8. $h = 73.3^\circ$ 9. $i = 23.6$ 10. $j = 28.1^\circ$
11. $k = 28.7$ 12. $l = 40.1^\circ$ 13. $m = 2.1$ 14. $n = 5.2$ 15. $o = 5.2$
16. $p = 64.6^\circ$ 17. $q = 8.2$ $r = 55.1^\circ$ 18. $s = 6.7$ $t = 4.7$ $u = 8.2$
19. $v = 1.7$ $w = 1.4$ $x = 45.6^\circ$

Trigonometry (3) – Isosceles Triangles & Frameworks

1. (a) 5.8 cm (b) 25.4 cm (c) 11.8 mm
2. 34.8 cm
3. (a) 31° - No (b) 21.8° - Yes
4. (a) DB = 15.0 mm (b) BC = 18.3 mm
5. AB = 2.7 m $\therefore \angle ACB = 32.7^\circ$ (32.9°) - It is a safe chute.

Trigonometry (4) – Problems

1. 68.0° 2. 41.8° 3. 3.8 m 4. 11.7 m
5. 63.6° 6. 17.0 m 7. 15.6 m 8. 40.0°
9. 28.0 m 10. 88.8 cm 11. 4.4 cm