

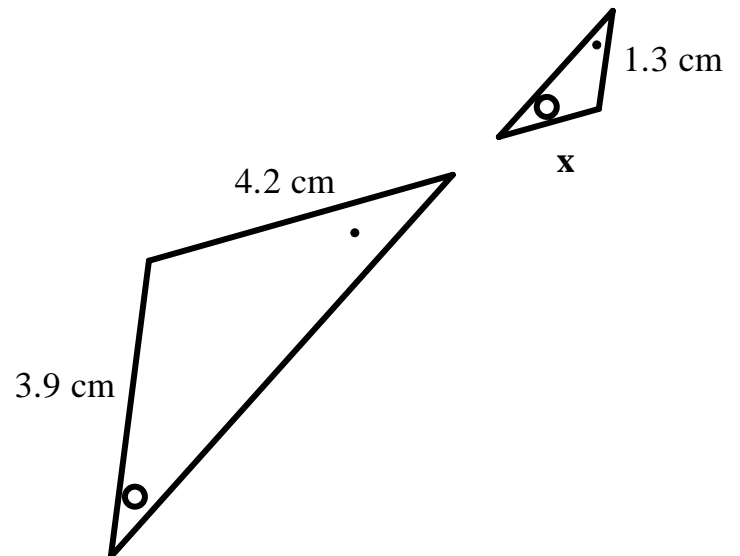
Multiple Choice: (12 marks) Fill in answers in the table at the end. Scan and e-mail only the multiple choice answers and long answer workings.

1) Which answer below is true about similar triangles?

- a) They have corresponding sides that are congruent sides.
- b) The ratios of corresponding sides all equal to 1.
- c) The ratios of corresponding sides are all equal.
- d) They have the same size and shape.

2) Solve for x.

- a) 0.9 cm
- b) 12.6 cm
- c) 16.8 cm
- d) 21.3 cm



3) Which answer below is true?

- a) If you subtract any value from each number in a Pythagorean triple, the result will still be a Pythagorean triple.
- b) If you add any value from each number in a Pythagorean triple, the result will still be a Pythagorean triple.
- c) If you multiply the same value from each number in a Pythagorean triple, the result will still be a Pythagorean triple.
- d) You can perform any math operation to a Pythagorean triple and still have a Pythagorean triple as a result.

4) A triangle has sides 2, 3 and $\sqrt{14}$. Which answer below is true?

- a) It is a right triangle because its sides make up a Pythagorean triple.
- b) It is a right triangle because its sides do not make up a Pythagorean triple.
- c) It is not a right triangle because its sides make up a Pythagorean triple.
- d) It is not a right triangle because its sides do not make up a Pythagorean triple.

5) If $\cos(x) = P$, which answer below is true?

- a) $\sin(90^\circ + x) = P$
- b) $\sin(90^\circ - x) = P$
- c) $\sin(180^\circ - x) = P$
- d) $\sin(x) = P$

6) If $\tan(67^\circ) = x$, which answer below is true?

- a) $\frac{\cos(67^\circ)}{\sin(67^\circ)} = x$
- b) $\frac{\sin(67^\circ)}{\cos(67^\circ)} = x$
- c) $\frac{\sin(67^\circ)}{\cos(23^\circ)} = x$
- d) $\frac{\sin(23^\circ)}{\cos(67^\circ)} = x$

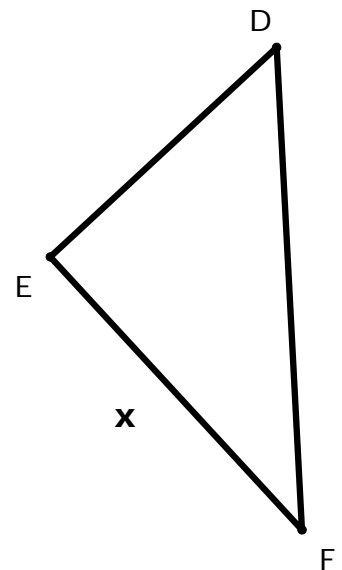
7) What is the value for x in the diagram to the right?

- a) 2.2 cm
- b) 4.6 cm
- c) 7.2 cm
- d) 21.6 cm

$$m\angle DEF = 90^\circ$$

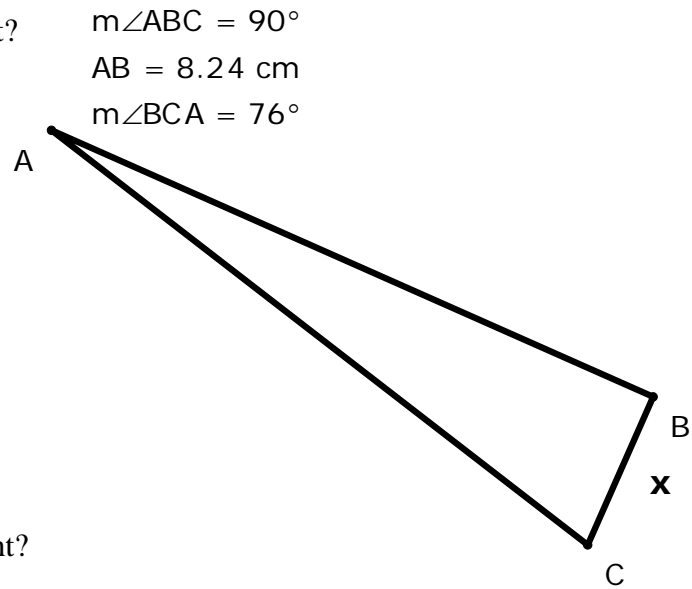
$$DE = 3.86 \text{ cm}$$

$$DF = 6.04 \text{ cm}$$



8) What is the value for x in the diagram to the right?

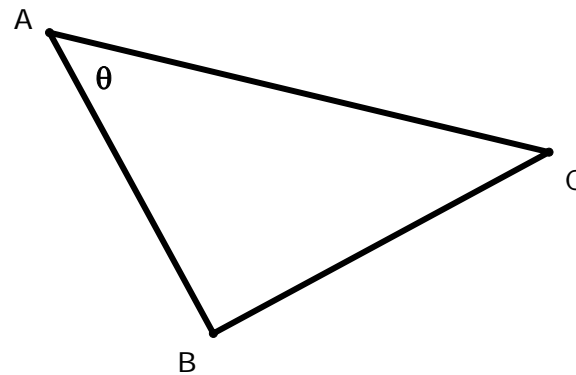
- a) 2.1 cm
- b) 8.5 cm
- c) 34.1 cm
- d) 33.0 cm



9) What is the value for θ in the diagram to the right?

- a) 33.7°
- b) 41.8°
- c) 48.2°
- d) 56.3°

$m\angle ABC = 90^\circ$
 $AC = 6.79 \text{ cm}$
 $AB = 4.53 \text{ cm}$



10) Which bearing below would represent a direction of Due South?

- a) 0°
- b) 90°
- c) 180°
- d) 270°

11) What is $3\sqrt{52} - 4\sqrt{117}$?

- a) $-18\sqrt{13}$
- b) $-6\sqrt{13}$
- c) $6\sqrt{13}$
- d) $18\sqrt{13}$

12) Sarah is looking at an airplane in the sky at an angle of elevation of 36° . At what angle of depression would someone on the airplane have to look and see Sarah on the ground?

- a) 36°
- b) 45°
- c) 54°
- d) 90°

Multiple Choice Answers

1.	7.
2.	8.
3.	9.
4.	10.
5.	11.
6.	12.

- 1) Two helicopters, flying at an altitude of 1000m, spot a lost individual on the ground below. The first helicopter is looking down at the individual with an angle of depression of 79° while the second helicopter is looking down at an angle of depression of 68° . If the two helicopters are at opposite ends of the individual, how far apart are they? (6 marks)

2) Suppose you were to follow this orienteering path:

-582 m at a bearing of 90° , then

-352 m at a bearing of 135°

Find the length and bearing of the resultant vector. (6 marks)

3) Solve the following for x and show all possible workings.

a. $x = \sqrt{5x+6}$ (3 marks)

b. $|3x-7|-8=4$ (3 marks)