

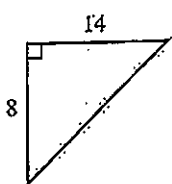
YEAR 10 CORE REVISION – TERM 4- 2009

**Topics covered:** *Pythagoras - Trigonometry - Bearings*  
**Date of Exam:** November 19<sup>th</sup>, 2009 [Week 7]  
**Venue:** consult your maths teacher  
**Time:** 9.00 AM Duration: 90 minutes  
**Equipments to bring:** Pencil case, ruler and scientific calculator

**Test Yourself Chapter 8 The right-angled triangle**

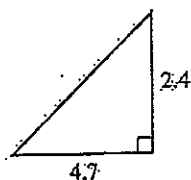
*All Multiple Choice*

- 1 What is the value of the hypotenuse in this figure, rounded to the nearest whole number?



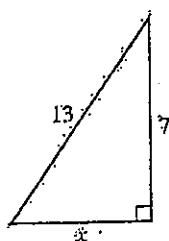
- A 13
- B 16
- C 19
- D 22

- 2 What is the value of the longest side of this figure?



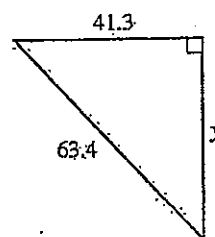
- A 2.1
- B 3.4
- C 4.9
- D 5.3

- 3 What is the value of the pronumeral in this figure, rounded to the nearest whole number?



- A 13
- B 12
- C 11
- D 10

- 4 What is the value of the pronumeral in this figure?

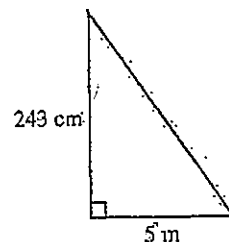


- A 10.8
- B 12.7
- C 33.5
- D 48.1

- 5 The diagonal of a rectangle is 100 m. One side has a length of 80 m. The length of the other side is:

- A 40 m
- B 50 m
- C 60 m
- D 70 m

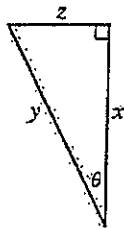
6



The length of the hypotenuse of this triangle is:

- A 556 cm
- B 589 cm
- C 610 cm
- D 659 cm

13



Which statement is TRUE?

- A  $\tan \theta = \frac{z}{x}$
- B  $\tan \theta = \frac{x}{y}$
- C  $\tan \theta = \frac{x}{z}$
- D  $\tan \theta = \frac{z}{y}$

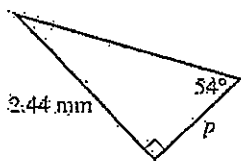
14 What is  $\tan 58^\circ$  rounded to 4 decimal places?

- A 0.7902
- B 1.6003
- C 0.8481
- D 0.9928

15 What is  $\tan 4^\circ$  rounded to 4 decimal places?

- A 0.0699
- B 0.9976
- C 0.6992
- D 0.6993

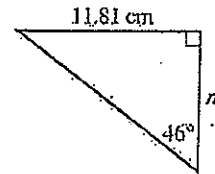
16



Find the value of  $p$  correct to 2 decimal places.

- A 3.02 mm
- B 4.15 mm
- C 1.77 mm
- D 1.97 mm

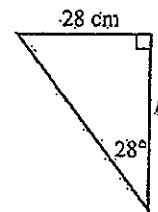
17



Which of these tangent ratios would be used to find  $m$ ?

- A  $\tan 46^\circ = \frac{11.81}{m}$
- B  $\tan 46^\circ = \frac{m}{11.81}$
- C  $\tan 46^\circ = m \times 11.81$
- D  $\tan 46^\circ = 11.81m$

18



Find the value of  $n$  correct to 2 decimal places.

- A 13.14 cm
- B 14.88 cm
- C 31.71 cm
- D 52.66 cm

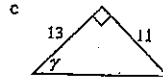
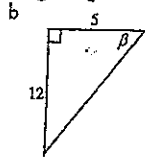
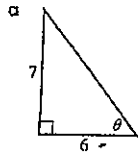
19 If  $\tan \theta = 0.0349$ , what is  $\theta$  to the nearest degree.

- A  $2^\circ$
- B  $79^\circ$
- C  $88^\circ$
- D  $77^\circ$

20 If  $\tan \theta = 0.2493$ , what is  $\theta$  to the nearest degree?

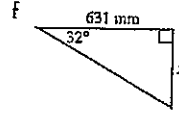
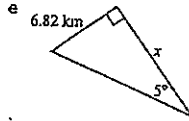
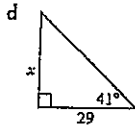
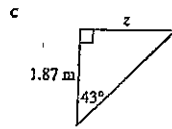
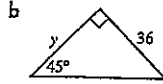
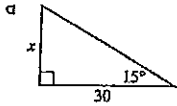
- A  $76^\circ$
- B  $14^\circ$
- C  $43^\circ$
- D  $11^\circ$

15 Write the tangent ratio which connects the lengths of the given sides and the size of the given angle in each of the following triangles.



16 Use a calculator to find the value of the following tangent ratios, correct to 4 decimal places.  
 a  $\tan 54^\circ$       b  $\tan 39^\circ$       c  $\tan 12^\circ$

17 Find the values of the pronumerals in each of the following triangles. Give answers correct to 2 decimal places.

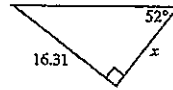


18 If the perpendicular height of an equilateral triangle is 28 cm, what is the length of its base?

19 **Multiple Choice**

What is the value of  $x$  in the triangle shown, correct to 2 decimal places?

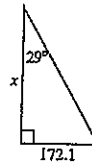
- A 26.49    B 10.04    C 12.85    D 12.74



20 **Multiple Choice**

Which of the following could be used to find the value of  $x$  in the triangle shown at right?

- A  $x = \frac{\tan 29^\circ}{172.1}$       B  $x = \frac{172.1}{\tan 29^\circ}$   
 C  $x = 172.1$       D  $x = 172.1 \times \tan 29^\circ$



21 Evaluate each of the following, correct to the nearest degree.

- a  $\tan^{-1} 0.1572$       b  $\tan^{-1} 0.8361$       c  $\tan^{-1} 0.5237$

22 **Multiple Choice**

The value of  $\tan^{-1} 1.8931$  is closest to:

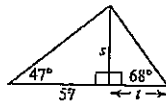
- A  $62^\circ$       B  $0.0331^\circ$       C  $1.08^\circ$       D  $69^\circ$

23 Find the size of the angle in each of the following. Give answers correct to the nearest degree.

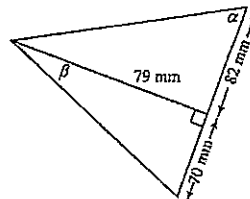
- a  $\tan \theta = 0.8235$       b  $\tan \alpha = 0.5774$       c  $\tan \beta = 8.3791$

27 The diagonal of a rectangle is 5.2 m long. If the rectangle is 2.4 m wide, find:  
 a the length of the rectangle  
 b the area of the rectangle.

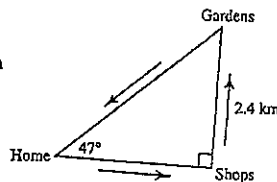
28 Find the values of  $s$  and  $t$  in the figure at right.



29 Find the size of the angles  $\alpha$  and  $\beta$  for the figure at right.



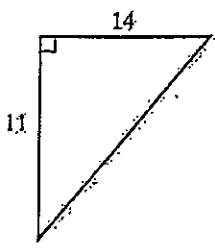
30 Grace, the Doberman, takes her owners for a daily jog. She starts from home, jogs to the shops, then to the gardens and then returns home, as shown in the diagram at right. Find the total length of Grace's daily jog.



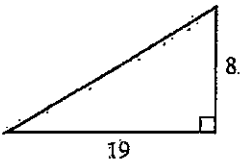
- 1 Are the following statements TRUE or FALSE?
- (a) Pythagoras' theorem applies only to right-angled triangles.
  - (b) If two sides of a right-angled triangle are 4 cm and 6 cm, then the length of the hypotenuse is 7.21 cm.
  - (c) If the length of the hypotenuse is 22 mm and one side is 13 mm, then the length of the other side is 19 mm.

2 Find the length of the hypotenuse, correct to 2 decimal places.

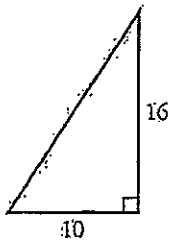
(a)



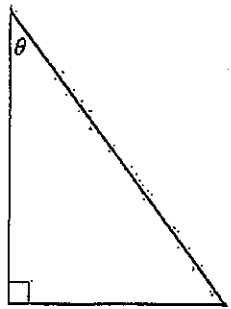
(b)



(c)



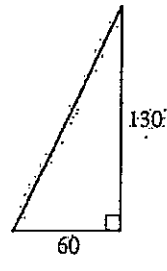
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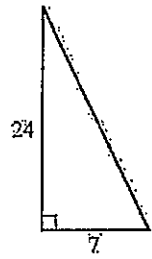
Label the sides adjacent, hypotenuse and opposite on the above triangle.

- 1 Calculate the length of the hypotenuse (exactly if possible; if not, round your answer to 2 decimal places).

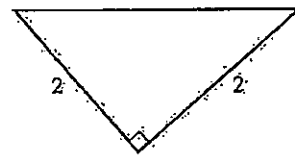
(a)



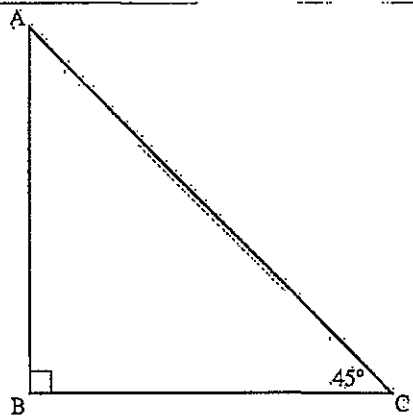
(b)



(c)



5



In the triangle ABC measure:

- (a) the length of AB
- (b) the length of BC.
- (c) Evaluate  $\tan 45^\circ$  by calculating  $\frac{AB}{BC}$ .

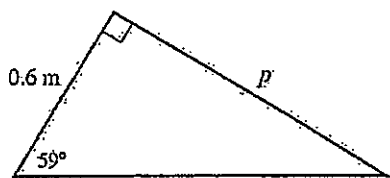
**WorkSHEET 8.3 The right-angled triangle**

Name: \_\_\_\_\_

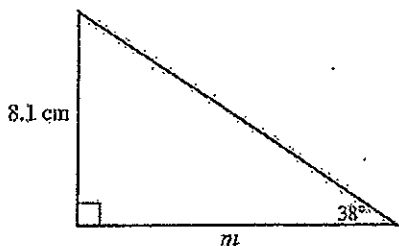
1 Evaluate each of the following, correct to 4 decimal places.

- (a)  $\tan 1^\circ$
- (b)  $\tan 89^\circ$
- (c)  $\tan 44^\circ$

2 Calculate length of  $p$  correct to 2 decimal places.

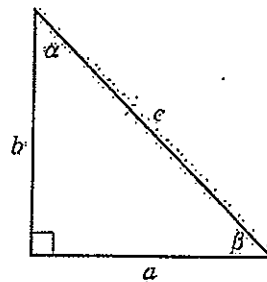


3 Use your calculator to find length  $m$ .



4 The top of a ladder makes an angle of  $27^\circ$  with a vertical wall. If the ladder reaches 4.75 m up the wall, how far is the foot of the ladder from the base of the wall?

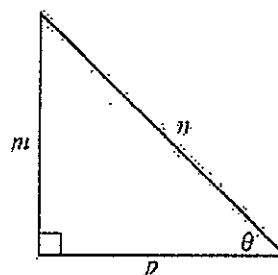
6



Write expressions for:

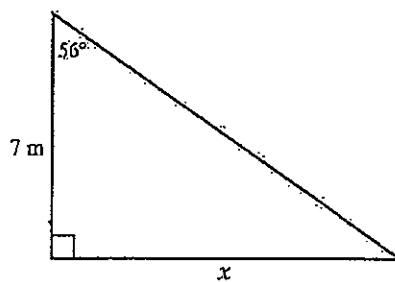
- (a)  $\tan \alpha$
- (b)  $\tan \beta$ .

7 Write the tangent ratio for this triangle.

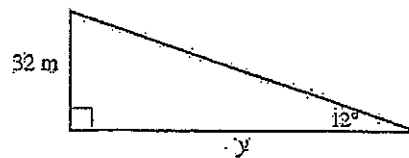


8 Write the form of the tangent ratio required to solve the following triangles.

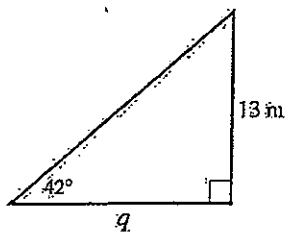
(a)



(b)



- 5 Find length  $q$ . Answer correct to 1 decimal place.



- 6 A guy-wire supporting a vertical pole is anchored at an angle of  $72^\circ$  to the ground, 5.85 m from the base of the pole. How tall is the pole?

- 7 Find the unknown angles. Round your answer to the nearest degree.

(a)  $\tan \beta = 9.5144$ ,  $\beta =$

(b)  $\tan \alpha = 0.9945$ ,  $\alpha =$

(c)  $\tan \theta = 0.8862$ ,  $\theta =$

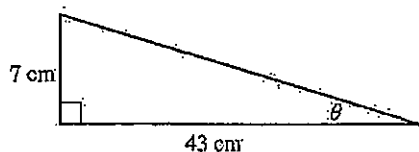
- 8 Evaluate to the nearest degree.

(a)  $\tan^{-1} 0.3907 =$

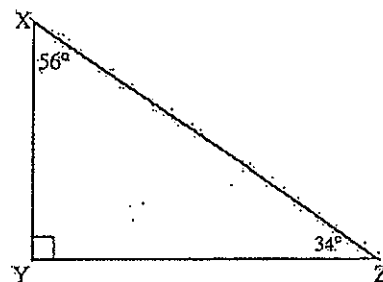
(b)  $\tan^{-1} 1.4281 =$

(c)  $\tan^{-1} 0.4848 =$

- 9 Find the value of  $\theta$  correct to the nearest degree.



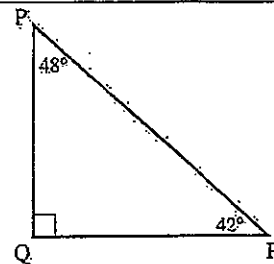
9



Measure the lengths of each side of triangle XYZ and use your results to make an estimate for the value of:

- (a)  $\tan 34^\circ$   
 (b)  $\tan 56^\circ$

10



Measure the side lengths of the triangle PQR and use your results to find the value of:

- (a)  $\tan 42^\circ$   
 (b)  $\frac{1}{\tan 42}$   
 (c)  $\tan 48^\circ$   
 (d)  $\frac{1}{\tan 48}$

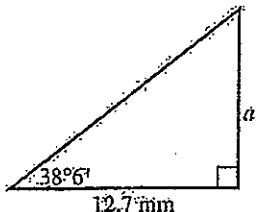
- 8 From the top of a vertical cliff, 72 m high, the angle of depression to a ship is  $7^\circ 11'$ . How far from the base of the cliff is the ship?

- 9 An observer is standing 15 m from the base of a tree. The angle of elevation to the top of the tree is  $37^\circ$ . Calculate the height of the tree.

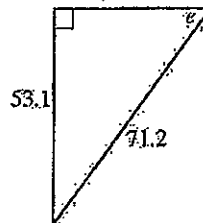
WorkSHEET 8.2 Trigonometry and its applications

Name: \_\_\_\_\_

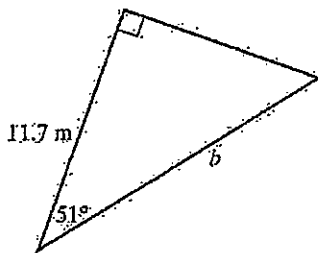
- 1 Find the length of the side,  $a$ , in the figure below.



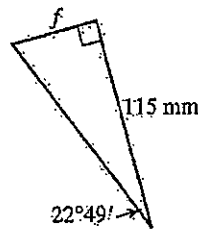
- 5 Find the size of the angle,  $e$ , in the figure below.



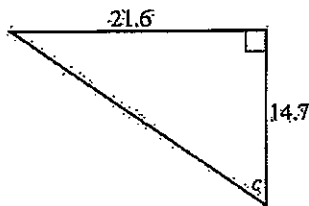
- 2 Find the length of the side,  $b$ , in the figure below.



- 6 Find the length of the side,  $f$ , in the figure below.

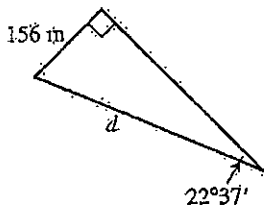


- 3 Find the size of the angle,  $c$ , in the figure below.



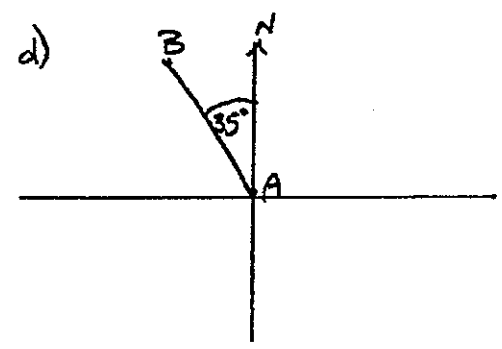
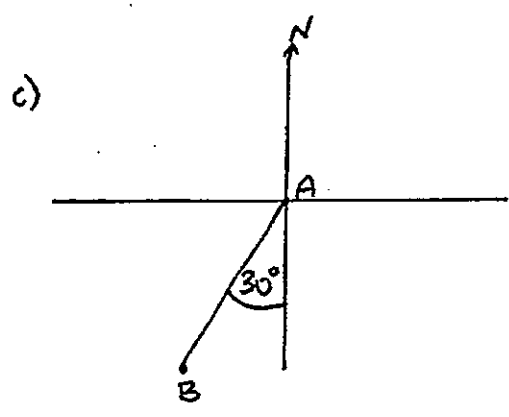
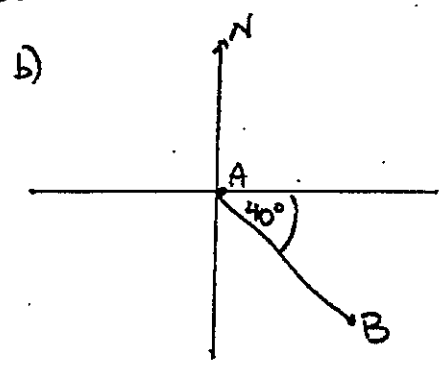
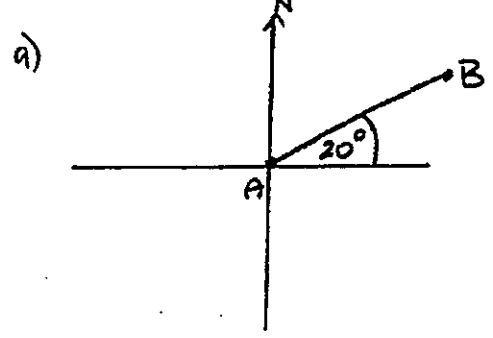
- 7 A post 14 m high casts a shadow 25 m long. What is the angle of elevation of the sun?

- 4 Find the length of the side,  $d$ , in the figure below.



# BEARINGS

1) Find the bearing from A to B:



2) For the question above find the direction from A to B.

3) A ship sails north for 15km then turns  $90^\circ$  E and sails for 20km. Find the ship's bearing from the starting point. (Draw a diagram to help)

4) You jog due west for 3km then turn  $90^\circ$  and jog north for 2km. What is the bearing from the start to the finish, and what is the distance from the start to the finish?

5) Describe the following diagram, clearly explain how you could go from point A to B.

