

TRIGONOMETRY

YEARS 9 AND 10

1. The value of $\sin 44^\circ 30'$, correct to 4 decimal places, is:

- A 0.6947
C 0.7009

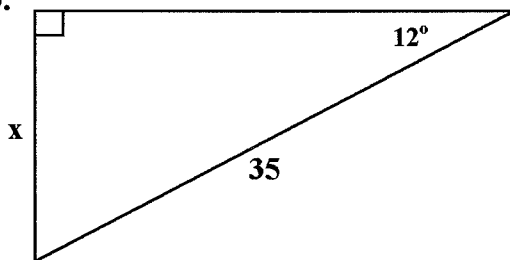
- B 0.6984
D 0.7133

2. If $\cos \theta^\circ = 0.8000$, θ is equal to:

- A 37°
C $36^\circ 87'$

- B $36^\circ 52'$
D $53^\circ 8'$

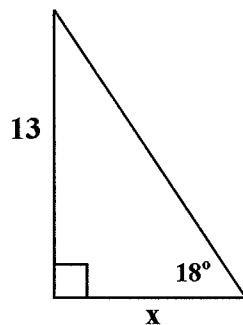
3.



Which statement about this triangle is correct?

- A $\tan 12^\circ = \frac{x}{35}$
B $\sin 12^\circ = \frac{x}{35}$
C $\cos 12^\circ = \frac{x}{35}$
D $\sin 12^\circ = \frac{35}{x}$

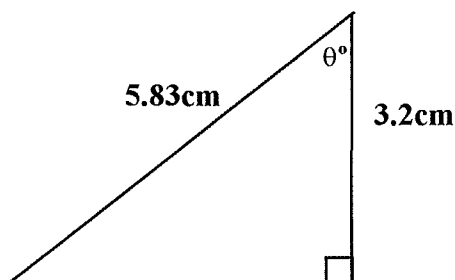
4.



The value of x in this triangle (to the nearest unit) is:

- A 4
B 12
C 14
D 40

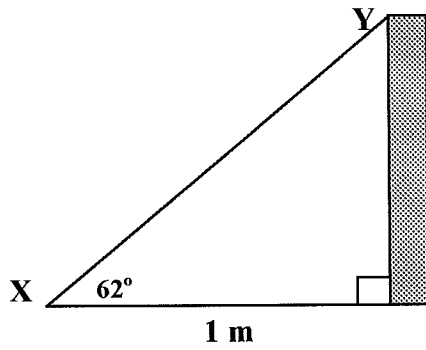
5.



The angle θ° in the triangle (to the nearest degree) is:

- A 29°
B 33°
C 56°
D 57°

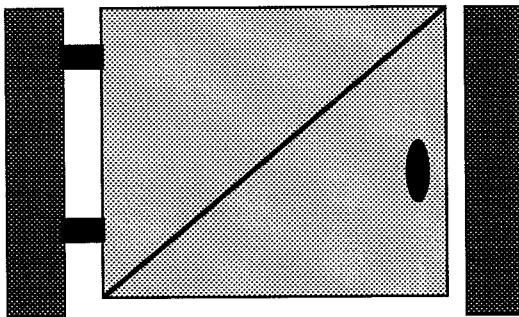
6.



A ladder XY is placed against a wall. If the base of the ladder is 1m from the wall, and it is found to make an angle of 62° with the ground:

- A The ladder must be 0.5m long and reaches 0.9m up the wall.
- B The ladder must be 2.1m long and reaches 1.9m up the wall
- C The ladder must be 2.1m long and reaches 0.9m up the wall
- D There is insufficient information to calculate the length of the ladder.

7.

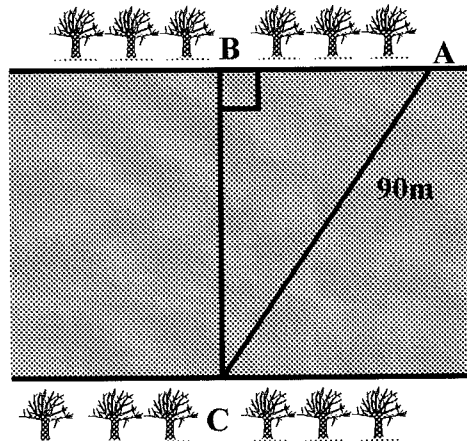


A gate is reinforced by a diagonal strut, as shown, which is 3m long makes an angle of 42° to the vertical.

The height of the gate is closest to:

- A 2.0m
- B 2.2m
- C 2.7m
- D 4.0m

8.



From point A on a river bank, a tree at C on the opposite bank is exactly 90m away as the crow flies. The angle between the bank AB and the line AC is 25° . The width of the river must be approximately:

- A 38m
- B 42m
- C 82m
- D 213m

Key:

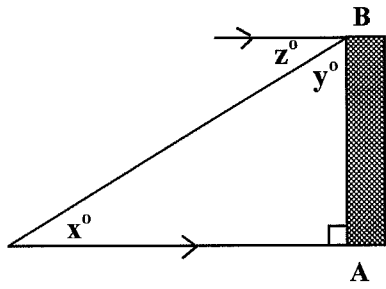


River bank



River

9.



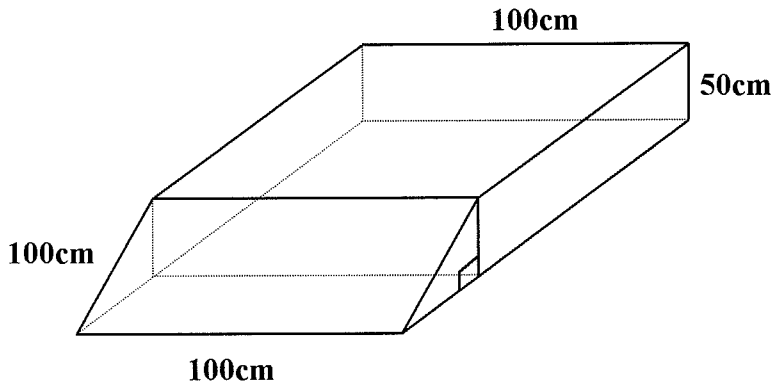
AB represents a tower. Which one of the following represents the angle of elevation of the top of the tower from the ground?

- A x°
- B y°
- C z°
- D $(z+y)^\circ$

10. The angle of depression of a parked car from the observation deck of a vertical tower, 100m high, is 48° . The distance from the car to the tower must be:-

- A 90m
- B 111m
- C 135m
- D 149m

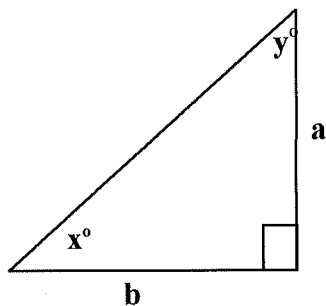
11.



A child's playtrack consists of a ramp 100cm x 100cm, then the top is a flat surface 50cm high. The steepest angle the child can ride up to the top is:

- A 21°
- B 30°
- C 45°
- D 60°

12

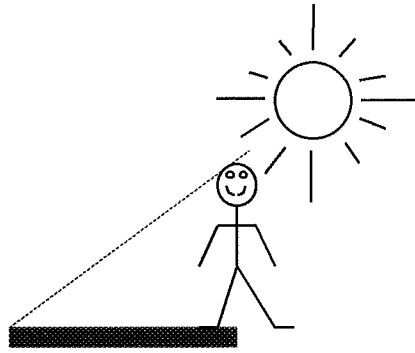


Consider the triangle shown. Which of the following statements is true?

- A $\cos x^\circ = \sin y^\circ$
- B $a^2 = b^2 + c^2$
- C $\tan x^\circ = \frac{a}{c}$
- D $\sin y^\circ = \frac{a}{b}$

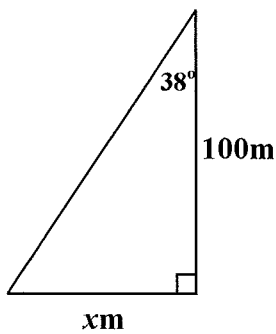
- 13 At a certain time of day Jim's shadow is 1.2m long. If he is actually 1.6m tall, the angle of elevation of the Sun at that time is:

- A 36.9°
 B 41.4°
 C 48.6°
 D 53.1°

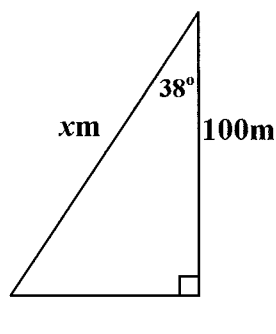


14. The angle of depression of a yacht from a cliff top 100m high is 38° . If x m is the distance of the yacht from the cliff, the correct diagram is:

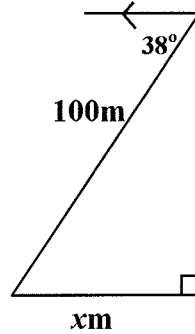
A



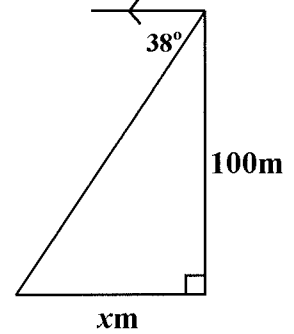
B



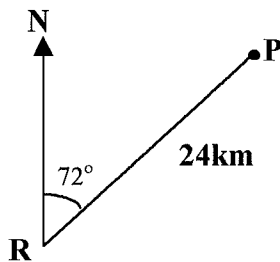
C



D



- 15



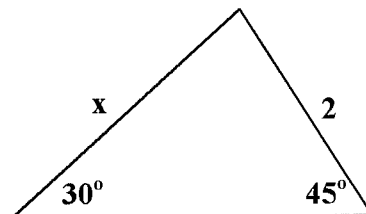
A helipad P is 24km away from a hospital roof R on a bearing of 072° T. The distance P east of R is:

- A 4 km
 B 23 km
 C 24 km
 D 78 km

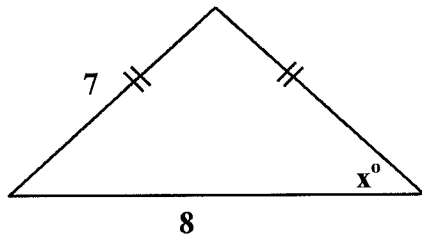
- 16 The exact value for x in the diagram is:

- A $\sqrt{3}$
 B $\frac{\sqrt{2}}{2}$
 C $2\sqrt{2}$

- D Unable to be determined since there is insufficient information.



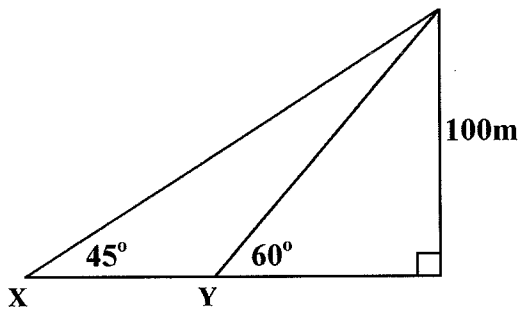
17.



The value of x is:

- A 30
- B 35
- C 41
- D 55

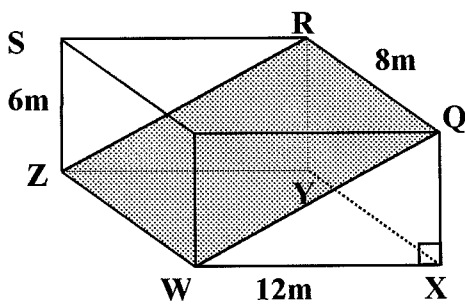
18.



The distance XY is:

- A 42 m
- B 58 m
- C 100 m
- D unable to be determined, due to insufficient information

THE NEXT 3 QUESTIONS REFER TO THE FOLLOWING INFORMATION:



PQRS WXYZ is a clear plastic box. Inside (shaded) is a red perspex insert (WQRZ) which exactly fits into the box and does not bend.

19. The angle the plastic sheet makes with the base of the box is:

- A 26.6°
- B 30°
- C 60°
- D 63.4°

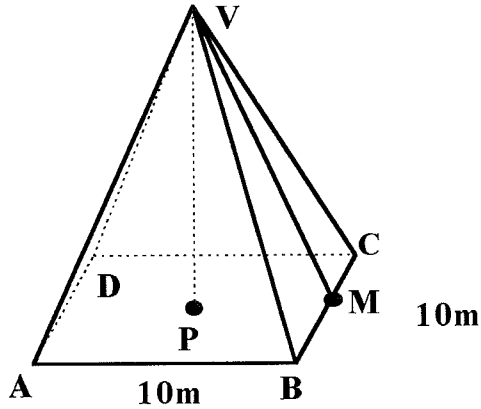
20. The area of the red perspex sheet is (to the nearest unit):

- A 83 m^2
- B 107 m^2
- C 144 m^2
- D 1440 m^2

21. An ant sets off on a journey on the red perspex directly from W to R in a straight line. The angle at which it climbed was (to the nearest degree):

- A 23°
- B 27°
- C 29°
- D 30°

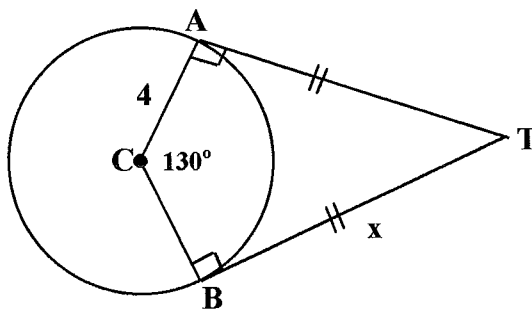
22.



VABCP is a pyramid of square base 10m x 10m and perpendicular height 12m. M is the middle of the edge BC. An athlete decides to run directly up the line MV. P is the centre of the base. The angle MV makes with the base is:

- A 50°
- B 59°
- C 65°
- D 67°

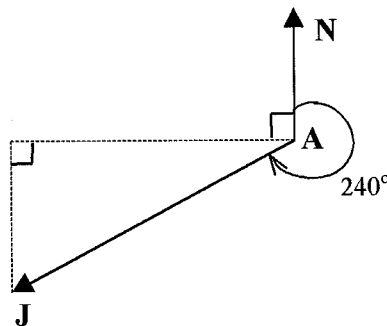
23.



AT and BT are tangents to a circle of centre C. The value of x is:

- A 1.7
- B 1.9
- C 4.4
- D 8.6

24.



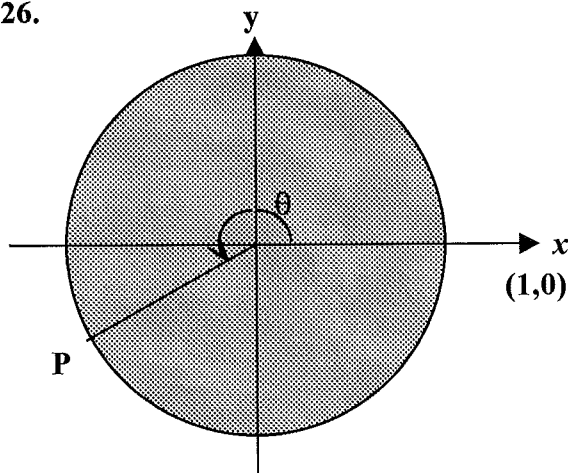
A jet J flew at a bearing of 240° T from an Airport A until it was 155km due west of the Airport. The distance it flew was:

- A 89 km
- B 134 km
- C 179 km
- D 310 km

25. An angle with a sine of 1 is:

- A 0°
- B 45°
- C 90°
- D does not exist since all angles have a sin less than 1

26.



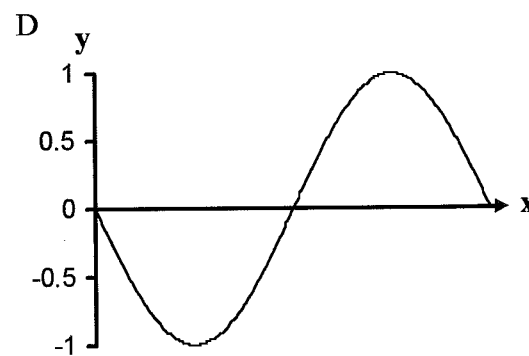
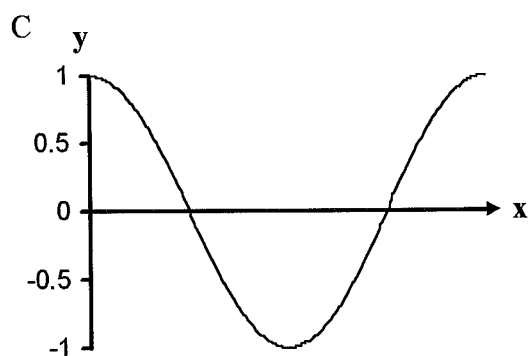
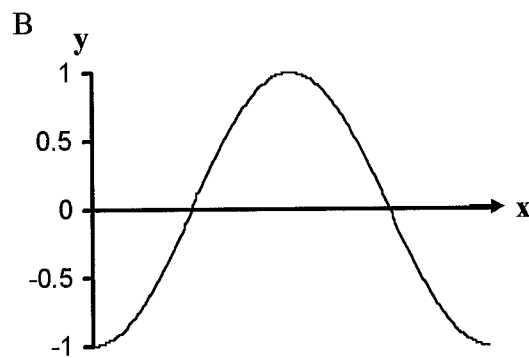
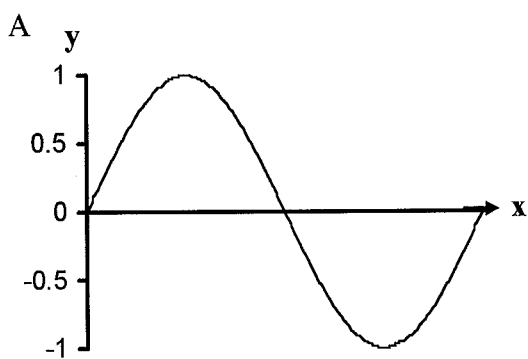
The y coordinate of the point P is $-1/2$.
The value of θ is :

- A 210°
- B 225°
- C 240°
- D unable to be determined from the information provided

27. If $\sin x^\circ = 1/2$, where $0^\circ \leq x^\circ \leq 360^\circ$, then $\cos x^\circ$ is equal to:

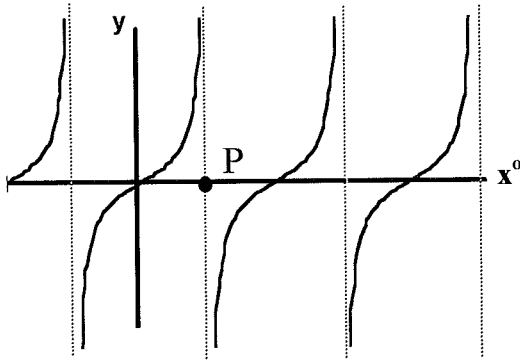
- | | |
|---|------------------------|
| A $\frac{1}{2}$ or $-\frac{1}{2}$ | B $\frac{\sqrt{3}}{2}$ |
| C $\frac{\sqrt{3}}{2}$ or $-\frac{\sqrt{3}}{2}$ | D $\frac{\sqrt{2}}{2}$ |

28. The graph of $y = \cos x^\circ$, where $0^\circ \leq x^\circ \leq 360^\circ$, is :



THE NEXT 3 QUESTIONS REFER TO THE FOLLOWING INFORMATION:

The following graph is the graph of $y = \tan x^\circ$.



29. What is the value of x at point P?
- | | | | |
|---|-------------|---|-------------|
| A | 45° | B | 90° |
| C | 180° | D | 360° |
30. At the point P, we say the value of $\tan x^\circ$ is:
- | | | | |
|---|-----------|---|---------------|
| A | 0 | B | 1 or -1 |
| C | undefined | D | none of these |
31. We say the graph of $y = \tan x^\circ$ is:
- | | | | |
|---|-----------|---|---------------|
| A | linear | B | periodic |
| C | parabolic | D | none of these |
32. Which statement about the graph of $y = \sin \theta^\circ$ is correct?
- | | |
|---|--|
| A | Its period is 180° |
| B | Its amplitude is 1 |
| C | Its y intercept is 1 |
| D | It is the graph of the value of the X coordinate of the point on the unit circle as we rotate through θ° . |
33. The maximum value $\sin \theta^\circ$ can have is:
- | | | | |
|---|---------------|---|---------------|
| A | $\frac{1}{2}$ | B | 1 |
| C | infinity | D | none of these |
34. If $\tan x^\circ = -1$, where $0^\circ \leq x^\circ \leq 360^\circ$, then x is equal to:
- | | | | |
|---|---------------------------|---|----------------------------|
| A | 45° or 135° | B | 135° or 315° |
| C | 270° | D | 180° |
35. The exact value of $\cos 330^\circ$ is:
- | | | | |
|---|----------------------|---|-----------------------|
| A | $\frac{1}{2}$ | B | $-\frac{1}{2}$ |
| C | $\frac{\sqrt{3}}{2}$ | D | $-\frac{\sqrt{3}}{2}$ |

ANSWERS TO WORKSHEET ON TRIGONOMETRY

1	C	2	B	3	B	4	D	5	D	6	B
7	B	8	A	9	A	10	A	11	B	12	A
13	D	14	D	15	B	16	A	17	D	18	A
19	A	20	B	21	A	22	D	23	D	24	C
25	C	26	A	27	C	28	C	29	B	30	C
31	B	32	B	33	B	34	B	35	C		