Shape and Space 1

Use the following information to answer question 38.

Step 2
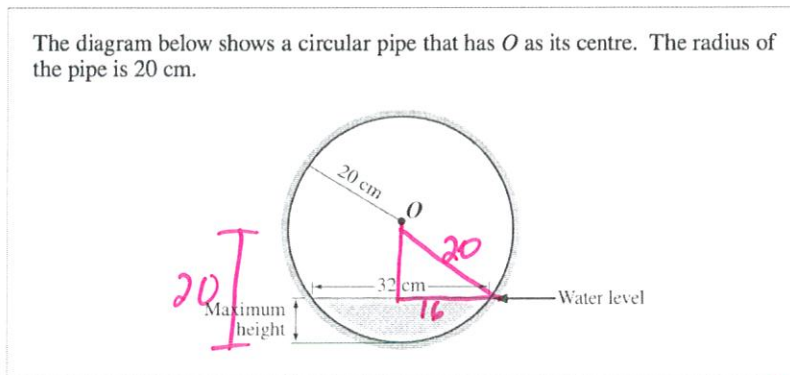$180 = 60 + 50 + x$
$x = 180 - 60 - 50$
$x = 70$

60°

50°

60°

70°

Step 1
$180 = 60 + 70 + y$
$y = 180 - 60 - 70$
$y = 50$

38. The measure of *x* in the diagram above is

- A. 50°
- B. 60°
- C. 65°
- D. 70°

Use the following information to answer numerical-response question 2.

The diagram below shows a circular pipe that has *O* as its centre. The radius of the pipe is 20 cm.

20 cm

O

20

20

32 cm

16

Maximum height

Water level

Numerical Response

2. The maximum depth of the water in the pipe is ____8____ cm.

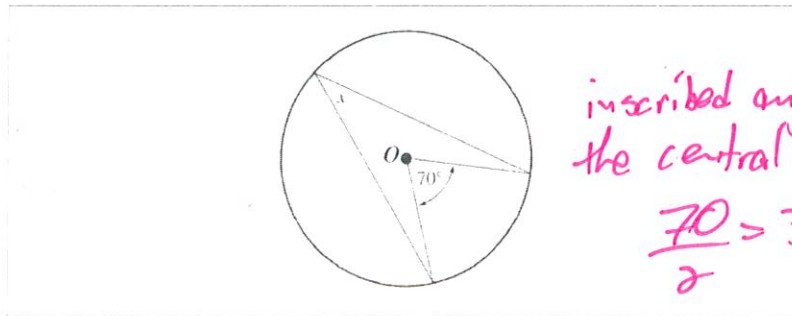(Record your answer in the numerical-response section on the answer sheet.)

$a^2 + b^2 = c^2$
$16^2 + b^2 = 20^2$
$b^2 = 20^2 - 16^2$
$= 400 - 256$
$= 144$
$b = \sqrt{144} = 12$

depth $= 20 - 12 = 8$

Shape and Space 1

Use the following information to answer numerical-response question 5.

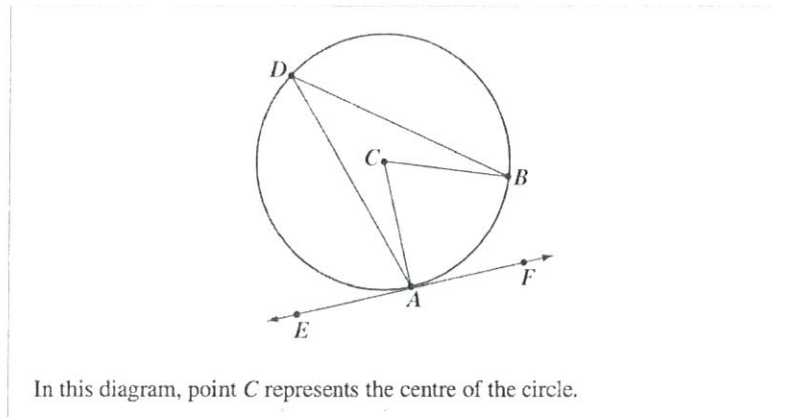*inscribed angle is half the central angle*

$$\frac{70}{2} = 35$$

Numerical Response

5. If O is the centre of the circle, the measure of x is ____35____ °.

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 12.

In this diagram, point C represents the centre of the circle.

**12.** Which of the following rows of terms correctly labels the parts of the diagram above?

Row	$\angle ADB$	$\overline{AD}$	$\angle ACB$	$\overleftrightarrow{EF}$
A.	Inscribed angle	Tangent line	Central angle	Chord
B.	Inscribed angle	Chord	Central angle	Tangent line
C.	Central angle	Tangent line	Inscribed angle	Chord
D.	Central angle	Chord	Inscribed angle	Tangent line

Shape and Space 1

Use the following information to answer question 10.

The gong shown below is 30 cm in diameter and hangs by a chain from a nail.
The total length of the chain is 18 cm. The lengths of chain on each side of the nail are equal
to each other and form a tangent to the gong.

Handwritten annotations:

2.49 cm

9cm

17.49cm

15cm

O
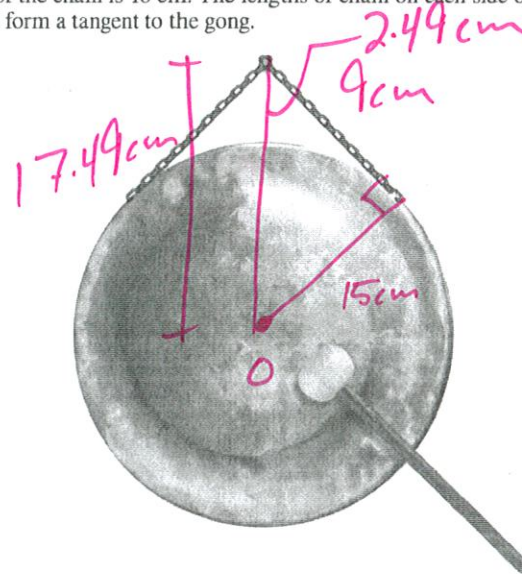
$a^2 + b^2 = c^2$

$15^2 + 9^2 = c^2$

$306 = c^2$

$c = \sqrt{306}$

$= 17.49cm$

$17.49 - 15 = 2.49cm$

Note: The diagram shown above has **not** been drawn to scale.

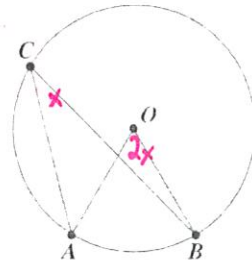10. How far above the top of the gong is the nail, to the nearest tenth of a centimetre?

    A.   2.3 cm
    B.   2.5 cm
    C.   12.0 cm
    D.   17.5 cm

Shape and Space 1

Use the following information to answer question 11.

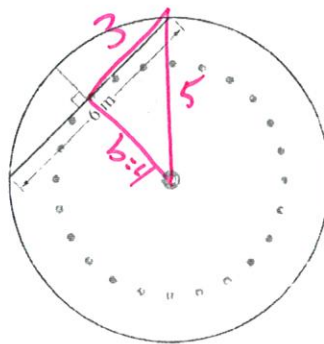The letter O in the diagram below represents the centre of the circle.

$x + 2x = 75$

$\dfrac{3x}{3} = \dfrac{75}{3}$

$x = 25$

Note: The diagram shown above has **not** been drawn to scale.

---

11. If the sum of $\angle AOB$ and $\angle ACB$ is $75°$, then $\angle ACB$ equals

   A. $30°$
   B. $25°$
   C. $20°$
   D. $15°$

Use the following information to answer question 16.

A diagram of a swimming pool is shown below. The dotted circle represents floating buoys. The pool has a diameter of 10 metres.

$a^2 + b^2 = c^2$

$3^2 + b^2 = 5^2$

$b^2 = 5^2 - 3^2$

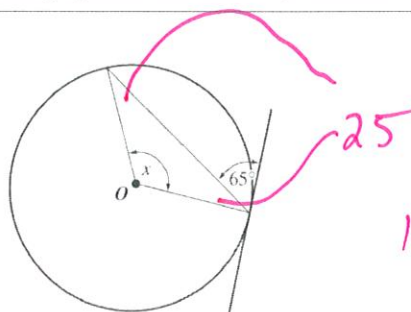$b^2 = 25 - 9$

$b^2 = 16$

$b = \sqrt{16} = 4$

16. The shortest distance from the buoys to the edge of the pool is

   A.   1 m
   B.   2 m
   C.   3 m
   D.   4 m

$5 - 4 = 1$

Shape and Space 1

Name:_____

Use the following information to answer question 26.

Tangent is 90° (perpendicular) to radius

90 - 65 = 25

Isosceles △

180 - 2(25) = 180-50
= 130

Note: The diagram shown above has **not** been drawn to scale. The letter O represents the centre of the circle.

26. If the line shown above is a tangent to the circle, then the measure of angle x is

   A. 110°
   B. 115°
   C. 130°
   D. 155°

Use the following information to answer question 8.

The arch in the diagram below forms a complete half-circle. The black support beam in the diagram is 3.6 m in length and is 3.0 m above the surface of the water.
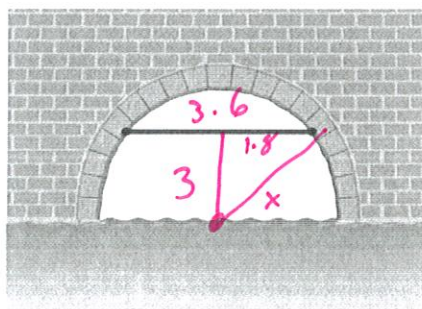
Note: The diagram shown above has **not** been drawn to scale.

8. To the nearest tenth of a metre, the diameter of the arch is

   A. 3.5 m
   B. 4.7 m
   C. 7.0 m
   D. 9.4 m

$a^2 + b^2 = c^2$

$3^2 + 1.8^2 = c^2$

$12.24 = c^2$

$c = 3.5m$ radius

$3.5 m \cdot 2 = $ diameter

diameter $= 7m$

Shape and Space 1

Name:_____

Use the following information to answer question 11.

The letter *W* is in the centre of the diagram below and represents the location of a wireless router for Internet access in a square house. The router provides access to the area represented by the dotted circle in the diagram below. This circular area has a diameter of 20 m.
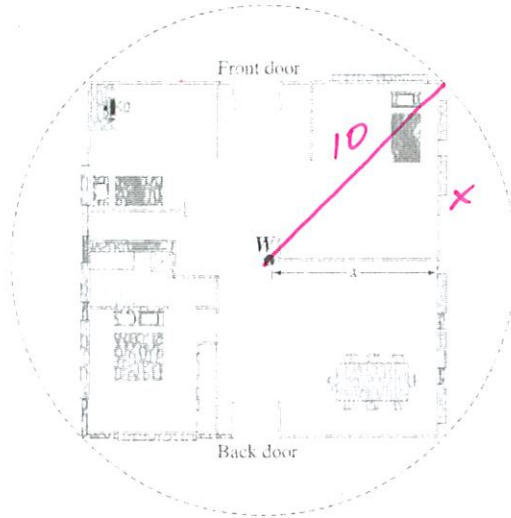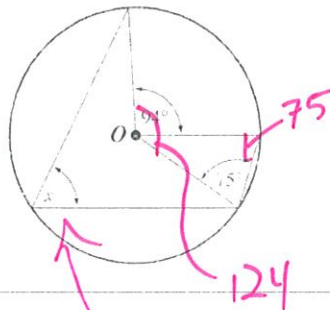

$$a^2 + b^2 = c^2$$
$$x^2 + x^2 = 10^2$$
$$2x^2 = 100$$
$$x^2 = 50$$
$$x = 7.07 m$$

11. To the nearest tenth of a metre, the distance, *x*, from the router, *W*, to the middle of one outside wall is

- **A.** 7.1 m
- **B.** 8.9 m
- **C.** 10.0 m
- **D.** 14.1 m

Use the following information to answer question 27.

Point *O* in the diagram below represents the centre of the circle.

75

124

$$180 - 2(75)$$
$$180 - 150 = 30$$
$$94 + 30 = 124$$

$$\frac{124}{2} = 62$$

27. The value of angle *x* is

- **A.** 47°
- **B.** 62°
- **C.** 75°
- **D.** 90°

Math 9   PAT Questions SS1   Mr. Student