NAME: _____

MATHEMATICS FORM 2
20 Questions (80 marks)

1. How would you describe this pattern's rule:

   a. -10, -5, 0, 5, … : _____   b. -1.6, 0.8, -0.4, 0.2,… : _____

   [2 m]

2. Determine whether the following number lists is a sequence or not.

   a. 32, 36, 40, 44, 48, …. : _____   b. $\frac{2}{3}$, $1\frac{1}{6}$, $1\frac{2}{3}$, $2\frac{1}{6}$: _____

   [2 m]

3. Complete the following number sequence based on the given pattern.

   Add 8 to the previous number :   2, 10, 18, _____, _____, 42

   [2 m]

4. Expand the following expressions.

   a. $3(5 + 7y)$ b. $(4 + 2s)(3 + s)$

   = _____ + _____   = _____ + _____ + _____   [5 m]

5. Simplify (Drag and drop the answers).

$q(p+1)$	5	4	m^2	22a	3p	$6a^2$

   a. $(2a - 4)(3a - 1) - 8a = $ _____ − _____ + _____

   b. $(m + 5)^2 - 10(m + 2) = $ _____ + _____

   c. $\frac{p^2-1}{3pq} \times \frac{q^2}{p-1} = $ −

   [7 m]

   = 18 m

LIVEWORKSHEETS

6. Factorise the following expressions.

   a. $5n + 30$

   = _____

       b. $m^2 - 2m - 15$

       = _____   [2 m]

7. Simplify: $\dfrac{x-y}{3x+2y} \div \dfrac{(x-y)^2}{12x+8y}$. Drag and drop the right answers.

$$= \frac{x - y}{3x + 2y} \times \frac{12x + 8y}{(x - y)^2}$$

$$= \frac{x - y}{3x + 2y} \times —$$

$$= —$$

| $x + y$ |

| $4(3x + 2y)$ |

| 4 |

| $(x + y)(x - y)$ |

[4 m]

8. Express the letters in the brackets as subject of the formula.

   a. $a = s - 3$ [s]

      s = _____

       b. $3h = 5 + k$ [k]

       k = _____

         c. $v = u + \frac{1}{2}t$ [t]

         t = _____

[3 m]

9. Given that $p = a + 8(n - 3)$, find the value of n when $p = 60$ and $a = 4$.

$$p = a + 8(n - 3)$$
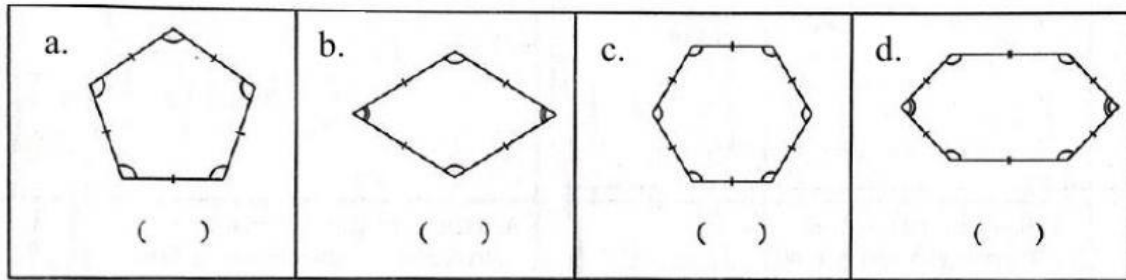$$p = a + 8n - 24$$
$$8n = p - a + 24$$

$$n = \frac{\underline{\quad} - \underline{\quad} + 24}{8}$$

$$n = \underline{\quad\quad}$$

[3 m]

= 12 m

10. Choose 'yes' for the regular polygons and 'no' for the irregular polygons.

[4 m]

a. ( )	b. ( )	c. ( )	d. ( )

11. Find the value of x.

160°   30°
95°
105°   125° x
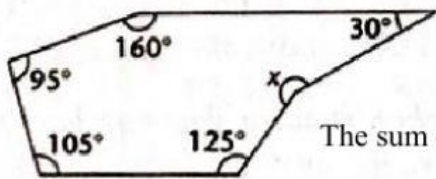
The sum of interior angles

$= (\underline{\quad} - 2) \times 180°$

$= \underline{\qquad}°$

$x + 160° + 95° + 105° + 125° + 30° = \underline{\qquad}°$

$x = \underline{\qquad}°$

[4 m]

12. Find the value of y.

125°   60°
100°
80° y
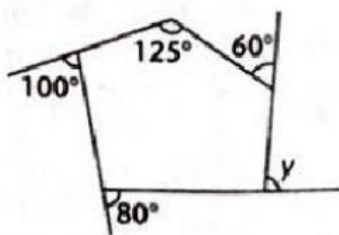
$y + 100° + 80° + 60° + (180° - 125°) = 360°$
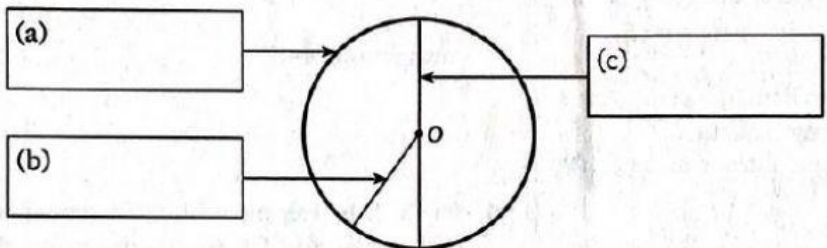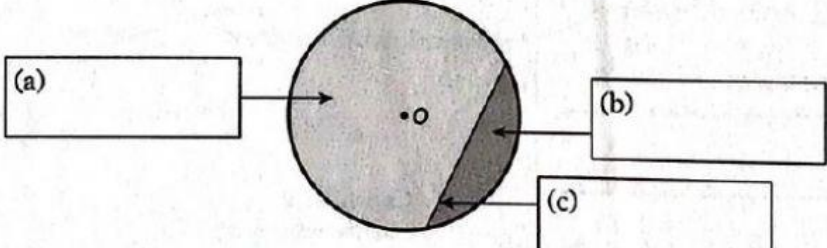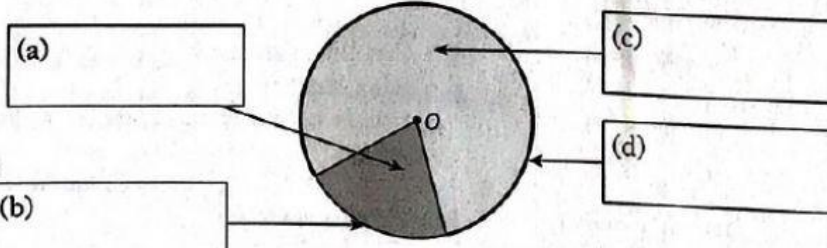
$y + \underline{\quad} = 360°$

$y = \underline{\quad}°$

[2 m]

= 10 m

13. Drag and drop the parts of the following circles.

i.

(a) ☐   (c) ☐

(b) ☐

ii.

(a) ☐   (b) ☐

(c) ☐

iii.

(a) ☐   (c) ☐

(b) ☐   (d) ☐

| Jejari |
| Radius |

Jejari
Radius

Diameter
Diameter

Lilitan
Circumference

Perentas
Chord

Lengkok minor
Minor arc

Lengkok major
Major arc

Sektor minor
Minor sector

Sektor major
Major sector

Tembereng minor
Minor segment

Tembereng major
Major segment

[10 m]

= 10 m

14. The diameter of a circle is 20 cm. Find the circumference, in cm, of the circle. Use $\pi = \frac{22}{7}$.
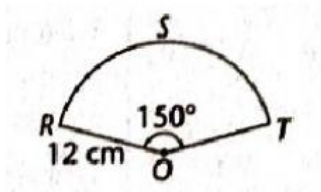
Circumference
$= \pi d$

$= $ _____   [1 m]

15. Calculate the length of arc RST. Use $\pi = 3.142$.

Length of arc

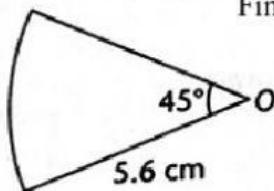$= \frac{\theta}{360°} \times 2\pi r$

$= \dfrac{}{360°} \times 2 \times 3.142 \times$ _____

$= $ _____ cm   [3 m]

16. (i) The diagram shows a sector of a circle with centre O. Use $\pi = \frac{22}{7}$.

Find the area, in cm^2, of the sector.

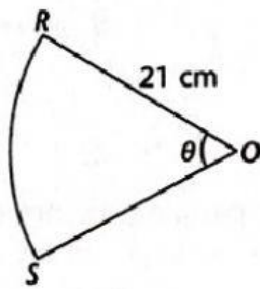Area of a sector

$= \frac{\theta}{360°} \times \pi r^2$

$= \dfrac{}{360°} \times \frac{22}{7} \times$ _____

$= $ _____ cm^2 [3 m]

$= 7$ m

(ii) The diagram shows a sector of a circle with centre O. Use $\pi = \frac{22}{7}$.

Given the length of arc RS is 22 cm. Find the value of θ

$$\frac{\theta}{360°} \times 2\pi r = \text{Length of arc}$$

$$\frac{\theta}{360°} \times 2 \times \frac{22}{7} \times 21 = 22$$

$$\theta = 22 \times 360° \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$$

$$\theta = \underline{\hspace{1.5cm}} \text{ cm}$$

[4 m]

17. Match each of the following solids with its net.

(i) Kon
Cone

•   •
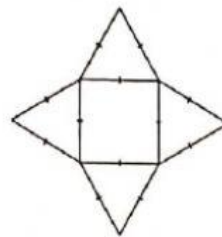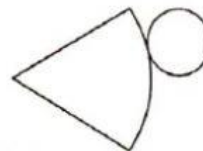
(ii) Piramid
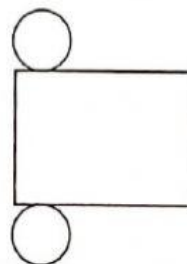Pyramid

•   •

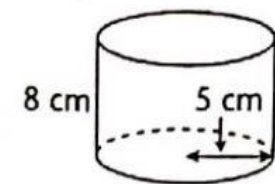(iii) Silinder
Cylinder

•   •

[3 m]

= 7 m

17. Find the surface area of the cylinder below. Type the calculation steps.

8 cm   5 cm

(Guna/Use π = 3.142)

Surface are of a cylinder
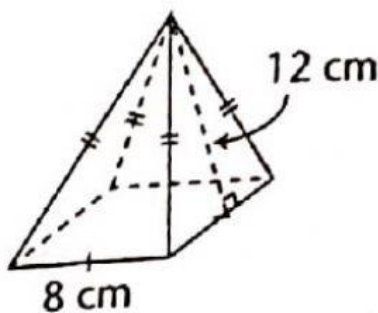
$= 2\pi r^2 + 2\pi rt$

$= \rule{3cm}{0.4pt} + \rule{3cm}{0.4pt}$

$= \rule{3cm}{0.4pt}$

$= \rule{3cm}{0.4pt} \ cm^2$ [4 m]

18. Find the surface area of the pyramid below. Type the calculation steps.

12 cm

8 cm

Surface are of a pyramid

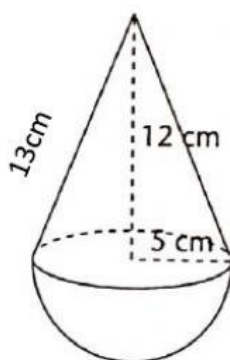$= (4 \times Area \ of \ a \ triangle) + (base \ area)$

$= 4 \times (\rule{2cm}{0.4pt}) + (\rule{2cm}{0.4pt})$

$= \rule{3cm}{0.4pt}$

$= \rule{3cm}{0.4pt} \ cm^2$ [4 m]

19. Calculate the surface area of the three-dimensional combined shapes. Type the calculation steps.

13cm   12 cm

5 cm

$\left(Guna/Use \ \pi = \dfrac{22}{7}\right)$

Surface are of a hemisphere + cone

$= \dfrac{1}{2}(4\pi r^2) + (\pi rs)$

$= \dfrac{1}{2} (\rule{2cm}{0.4pt}) + (\rule{2cm}{0.4pt})$

$= \rule{3cm}{0.4pt}$

$= \rule{3cm}{0.4pt} \ cm^2$

[4 m]

$= 12 \ m$

LIVEWORKSHEETS

20. Find the volume of the following three-dimensional shapes. Type the calculation steps.

a.

5 cm   12 cm

10 cm

13 cm
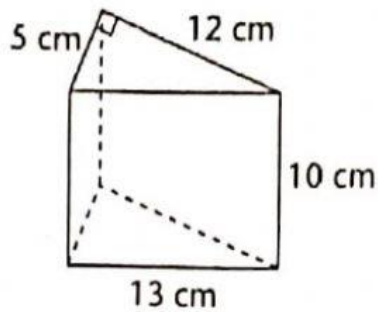
Volume of prism

$= base\ area \times h$

$= \frac{1}{2} ab \times h$

$= \frac{1}{2} \times$ _____

$=$ _____ cm^3

[2 m]

b.

12 cm   15 cm

9 cm
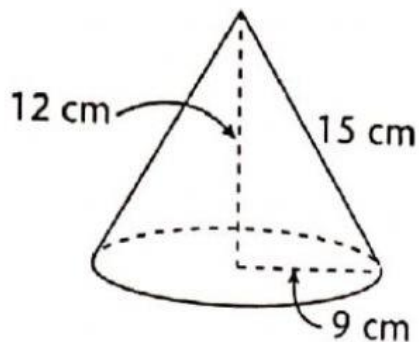
Volume of cone

$= \frac{1}{3} \times base\ area \times h$

$= \frac{1}{3} \pi r^2 \times h$

$= \frac{1}{3} \times \frac{22}{7} \times$ _____

$=$ _____ cm^3

[2 m]

= 4 m