

Place your answers in the spaces provided.

1. Write 7.2051 to 3 significant figures	7. Change 4.23 km to cm in scientific notation.
2. Find the value of $5^0 + 3^{-1}$	8. Fill in the blank: 'The base angles of an isosceles triangle are _____.'
3. Write down a decimal number between 0.38 and 0.385	9. A parallelogram has opposite sides parallel and equal. Give one other <b>special</b> property of a parallelogram.
4. Claire's weight went from 100kg to 65kg. What percentage reduction in weight was achieved by Claire?	10. If $\omega$ means 'half it and add 5', then $\omega(4) = \frac{4}{2} + 5$ . Find $\omega(2x-4)$
5. Write $\frac{4}{9}$ as a recurring decimal	11. A television set costs \$450 with a 10% GST, what is the price without GST?
6. Find $\sqrt{\frac{31.87}{4.2+3.1 \times 6}}$ to 2 decimal places	12. Use your calculator to $\sqrt{2+\sqrt{3+\sqrt{4.8}}}$ to 2 decimal places.

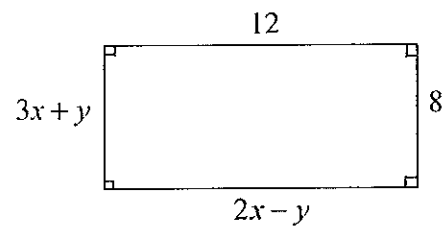
13. If I invest \$6400 for three years at 6.5% p.a. simple interest, how much will I get upon maturity?

14. Maria earns \$485.60 per week as her gross salary. However, 28% taxation, 3% superannuation and, as well as \$20.20 in health care, are deducted. What is her net pay?

15. Simplify:  $\sqrt{50} + \sqrt{18}$

16. Convert 12 m/s to km/s.

17. Find the value of  $x$  in the diagram below.

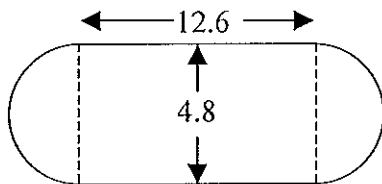


18. Expand and simplify fully:

$$(\sqrt{3} + 2)(1 - \sqrt{3})$$

19. Simplify:  $\frac{1}{\left(\frac{2}{3}\right)^{-2}}$

20. Find the perimeter and the area of the football oval with semi-circular ends.



21. Simplify:  $\frac{4\sqrt{12}}{\sqrt{3}} \times \frac{\sqrt{6}}{2\sqrt{8}}$

22. Find the value of  $x$  with a rational denominator, given that

$$x(\sqrt{5} - \sqrt{3}) = 2$$

23. Mrs Jones is a data entry operator. She completes an average of 50 computer screens of text per session. On average, it takes her 8 minutes to fill one screen and takes a 5 minute coffee break after 20 screens. If she starts at 9 am, at what time will she complete her session?

24. Consider this number pattern:

$$3^3 - 2^3 = 3 \times 3 \times 2 + 1$$

$$4^3 - 3^3 = 3 \times 4 \times 3 + 1$$

$$5^3 - 4^3 = 3 \times 5 \times 4 + 1$$

$$6^3 - 5^3 = 3 \times 6 \times 5 + 1$$

Use this pattern to find  $16^3 - 15^3$ .  
(Do not use your calculator, working must be shown clearly).

25. Solve for  $x$  in each of the following:

a)  $3^x = 81$

b)  $\left(\frac{1}{4}\right)^x = 32$

c)  $(\sqrt{5})^x = \frac{1}{125}$

26. Factorise completely:

a)  $x^2 - 25$

b)  $4x^2 - 9y^2$

c)  $x^4 - 1$

d)  $x^3 - x^2 + x - 1$

f)  $x^2 - 12x + 11$

g)  $2x^2 - xy - 6y^2$

h)  $3x^2 + 11x + 8$

i)  $8x^2 - x - 7$

27. Solve these quadratic equations:

a)  $(2x-3)(x+5)=0$

b)  $4x = x^2$

c)  $(x-2)^2 = 16$

d)  $\frac{2x+3}{x} = 5x$

28. Solve these equations leaving your answer in surd form:

a)  $x^2 - 4x - 4 = 0$

b)  $3x^2 + 3x - 7 = 0$

29. a) Solve the simultaneous equations

$$y - x - 6 = 0 \text{ and}$$

$$3y = x^2$$

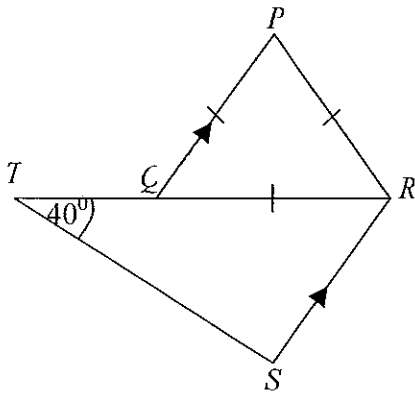
c) Simplify :  $\sqrt{(a^2 - 1)^2 + 4a^2}$

d) If  $x = \sqrt{3} - 2$ , show that  $\frac{1}{x} + x$  is rational.

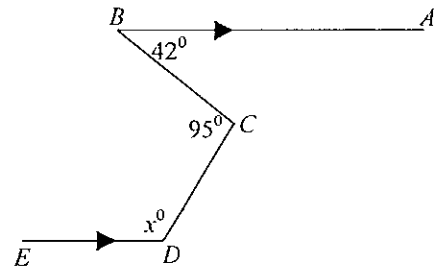
b) Express with a single denominator

$$\frac{x - ap^2}{p + q} - \frac{y - 2ap}{2}$$

30. In the diagram below, triangle  $PQR$  is equilateral,  $PQ \parallel RS$  and  $\angle STR = 40^\circ$ . Find the size of  $\angle TSR$ .



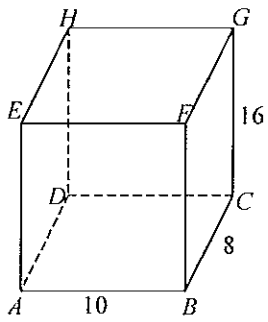
31. In the diagram below,  $AB \parallel DE$  and  $\angle ABC = 42^\circ$ ,  $\angle BCD = 95^\circ$ , find  $\angle CDE$  giving reasons.



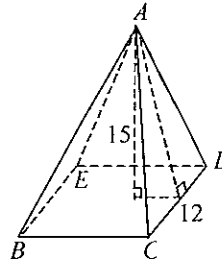


32. Find the surface area and volume of the following solids. (All measurements are in cm.)

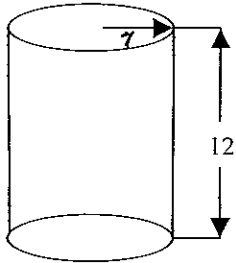
a) Rectangular prism



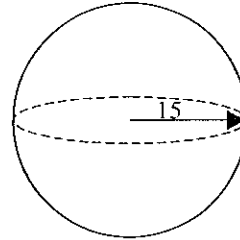
b) Square pyramid



c) Closed cylinder.



d) Sphere



*End of Assessment*

Answers to May assessment

- (1) 7.21 ✓
- (2)  $1\frac{1}{3}$  ✓
- (3) 0.383 ✓
- (4) 35% ✓
- (5) 0.4 ✓
- (6) 1.18 ✓
- (7)  $4.23 \times 10^5$  ✓
- (8) Equal ✓
- (9) Opposite angles are equal or diagonals bisect each other ✓
- (10)  $x+3$  ✓✓
- (11) \$409.09 ✓
- (12) 2.07 ✓
- (13) \$7648 ✓
- (14) \$314.86 ✓
- (15)  $8\sqrt{2}$  ✓✓
- (16) 0.012 km/s ✓
- (17)  $x=4$  ✓✓
- (18)  $-1-\sqrt{3}$  ✓✓
- (19)  $\frac{4}{9}$  ✓✓
- (20) Perimeter = 40.28 cm ✓✓  
Area = 78.58 cm<sup>2</sup> ✓✓
- (21)  $2\sqrt{3}$  ✓✓
- (22)  $\sqrt{5}+\sqrt{3}$  ✓✓
- (23) 7:50 pm ✓✓
- (24)  $3 \times 16 \times 15 + 1 = 721$  ✓✓
- (25) (a)  $x=4$  ✓✓
- (b)  $x=-\frac{5}{2}$  ✓✓
- (c)  $x=-6$  ✓✓
- (26) (a)  $(x+5)(x-5)$  ✓
- (b)  $(2x+3y)(2x-3y)$  ✓
- (c)  $(x^2+1)(x+1)(x-1)$  ✓✓
- (d)  $(x-1)(x^2+1)$  ✓✓
- (f)  $(x-11)(x-1)$  ✓
- (g)  $(2x+3y)(x-2y)$  ✓✓
- (h)  $(3x+8)(x+1)$  ✓✓
- (i)  $(8x+7)(x-1)$  ✓✓
- (27) (a)  $x=1\frac{1}{2}$  or  $-5$
- (b)  $x=0$  or  $4$
- (c)  $x=6$  or  $-2$
- (d)  $x=-\frac{3}{5}$  or  $1$
- (28) (a)  $2 \pm 2\sqrt{2} = 2(1 \pm \sqrt{2})$  ✓✓

$$(b) \frac{-3 \pm \sqrt{93}}{6} \checkmark \checkmark$$

$$(29) (a) \begin{array}{l} x = 6 \text{ or } -3 \checkmark \\ y = 12 \text{ or } 3 \checkmark \checkmark \end{array}$$

$$(b) \frac{2x - yp - yq + 2ap}{2p + 2q} \checkmark \checkmark$$

$$(c) a^2 + 1 \checkmark \checkmark$$

$$(d) -4 \checkmark \checkmark$$

$$(30) \angle TSR = 80^\circ \checkmark \checkmark$$

$$(31) x = 127^\circ \checkmark \checkmark \checkmark$$

$$(32) (a) \text{ Surface area} = 736 \text{ cm}^2 \checkmark$$

$$\text{Volume} = 1280 \text{ cm}^3 \checkmark$$

$$(b) \text{ Find the slant height first using} \\ \text{Pythagoras' theorem} = 16.16 \checkmark$$

$$\text{Surface area} = 531.73 \text{ cm}^2 \checkmark$$

$$\text{Volume} = 720 \text{ cm}^3 \checkmark$$

$$(c) \text{ Surface area} = 835.66 \text{ cm}^2 \checkmark \checkmark$$

$$\text{Volume} = 1847.26 \text{ cm}^3 \checkmark$$

$$(d) \text{ Surface area} = 2827.43 \text{ cm}^2 \checkmark \checkmark$$

$$\text{Volume} = 1413.17 \text{ cm}^3 \checkmark$$