

# Practice Paper 1

## Section I

Attempt Questions 1–15 (15 marks)  
Allow about 20 minutes for this section

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- Which of the following is the highest pay?
  - \$1442.22 per week
  - \$2884.68 per fortnight
  - \$6247.50 per month
  - \$75 000 per annum
- What is the number of significant figures in the number 0.00206?
  - 2
  - 3
  - 4
  - 5
- Which of the following is the correct simplification of  $11x^4 - 7x^4$ ?
  - 4
  - $4x$
  - $4x^4$
  - $4x^8$
- Stella sells shoes for a retail store and receives wages of \$1875 per month plus 4% commission on all her sales. What were her sales in a month in which she received a total pay of \$1953?
  - \$878.00
  - \$1946.88
  - \$1950.00
  - \$2190.12
- Simplify  $6 - 4(2x - 1)$ .
  - $4x - 2$
  - $4x + 6$
  - $7 - 8x$
  - $10 - 8x$

6 Arrange the numbers  $4.8 \times 10^{-2}$ ,  $4.0 \times 10^{-1}$ , and  $5.6 \times 10^{-2}$  in ascending order.

A  $4.8 \times 10^{-2}$ ,  $5.6 \times 10^{-2}$ ,  $4.0 \times 10^{-1}$

B  $4.0 \times 10^{-1}$ ,  $4.8 \times 10^{-2}$ ,  $5.6 \times 10^{-2}$

C  $5.6 \times 10^{-2}$ ,  $4.8 \times 10^{-2}$ ,  $4.0 \times 10^{-1}$

D  $4.0 \times 10^{-1}$ ,  $5.6 \times 10^{-2}$ ,  $4.8 \times 10^{-2}$

7 What is the value of  $2x - x^2$  if  $x = -3$ ?

A -15

B -3

C 3

D 15

8 A wage sheet of a mobile phone business shows one employee's details.

Employee	Rate per hour	Normal hours	Overtime ( $\times 2$ )	Wage
Terry Brown	\$20.00	30	$x$	\$840

Terry worked some overtime at double-time rate but it is missing from the wage sheet. Using the information on the wage sheet, how many hours of overtime did Terry work?

A 4

B 5

C 6

D 8

9 The circumference of a bicycle wheel is 220 cm. How many revolutions will the wheel make if it travels a distance of 6.6 km?

A 30

B 33.3

C 300

D 3000

10 Find the value of  $m$ , correct to one decimal place, given  $k = 24$  and the formula  $m = \sqrt{\frac{k}{5}}$ .

A 1.0

B 2.2

C 2.4

D 4.8

11 Find the value of  $x$  given  $a = 32$ ,  $y = 2$  and the formula  $a = 2xy^2$ .

A 3

B 4

C 5

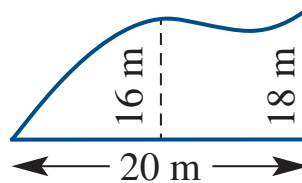
D 6

- 12** Tennis balls are sold in a box of 5 yellow balls or a box of  $x$  white balls. A tennis coach needs 400 balls and purchases 20 boxes of yellow balls and a certain number of white balls. Which of the following expressions describes the number of boxes of white balls purchased?

- A**  $\frac{400 - x}{5}$   
**B**  $300x$   
**C**  $300 + x$   
**D**  $\frac{300}{x}$

- 13** The irregular shape shown below has a width of 20 metres. The vertical dashed line divides it into two parts of equal width. Two applications of the trapezoidal rule were used to estimate the area.

Which expression is correct?



- A**  $\frac{10}{2}(16 + 18)$   
**B**  $\frac{10}{2}(32 + 18)$   
**C**  $\frac{20}{2}(16 + 18)$   
**D**  $\frac{20}{2}(32 + 18)$
- 14** What is the solution to the equation  $9x - 8 = 27$ ?
- A**  $x = \frac{9}{35}$   
**B**  $x = \frac{7}{3}$   
**C**  $x = 1\frac{8}{9}$   
**D**  $x = 3\frac{8}{9}$
- 15** A book was bought for  $\$(x + 10)$  and sold for  $\$(x - 20)$ . Which of the following statements is true?
- A** There was a profit of  $\$(x - 30)$ .  
**B** There was a loss of \$30.  
**C** There was a profit of  $\$(x + 10)$ .  
**D** There was a loss of  $\$(x - 30)$ .

## Section II

Attempt Questions 16–18 (45 marks)

Allow about 70 minutes for this section

All necessary working should be shown for every question.

### Question 16 (15 marks)

Marks

- a** A communication company pays overtime at a rate of time-and-a-half for the first 4 hours overtime and double-time thereafter. Natalie is employed as a personal assistant. During a normal week she works 35 hours at \$27.80 an hour.
- i** How much did Natalie earn in a week in which she worked 42 hours? 2
- ii** Natalie receives annual leave loading of  $17\frac{1}{2}\%$  of 4 weeks basic pay. 2
- 1** What is the value of Natalie's leave loading?
  - 2** Calculate the total amount Natalie is paid for her 4 weeks annual leave.

**b**

Taxable income	Tax payable
0–\$18 200	Nil
\$18 201–\$37 000	Nil +19 cents for each \$1 over \$18 200
\$37 001–\$87 000	\$3572 + 32.5 cents for each \$1 over \$37 000
\$87 001–\$180 000	\$19 822 + 37cents for each \$1 over \$87 000
\$180 001 and over	\$54 232 + 45cents for each \$1 over \$180 000

Daniel earns a gross income of \$63 500 during the financial year.  
He has allowable deductions of \$4500.

- i** What is Daniel's taxable income? 1
- ii** Calculate the tax payable on Daniel's income. 2
- iii** Daniel must pay 2% of his taxable income for the Medicare Levy. Calculate how much Daniel pays in Medicare Levy. 1
- iv** What is Daniel's total tax payable including the Levy? 1
- v** Daniel has paid \$12 255 in tax during the financial year. Determine whether Daniel receives a refund or whether he is required to pay more tax, and determine this amount. 2
- c** Simplify.
- i**  $1 - 2(5a + 3)$  **ii**  $45x^6y^5 \div 9xy^5$  4

**Question 17 (15 marks)****Marks**

- a** Blake plays cards with a normal deck and draws a card from the deck.
- i** What are the chances of drawing a 3 or a black card? 1
  - ii** What are the chances of not drawing an ace? 1
- b** An ornament is the shape of a cone with a 4.5 cm diameter and a height of 9 cm. Find the volume of the ornament. Answer correct to two decimal places. 2
- c** Solve the equation  $\frac{2x-5}{3} = 1$ . 2
- d** A cylindrical aluminium can has a diameter of 22 cm and a height of 13 cm.
- i** What is the total surface area of the cylindrical can? Answer correct to one decimal place. 2
  - ii** The curved surface of the cylindrical can is cut from an aluminium sheet 100 cm by 70 cm. How many curved surfaces can be cut? 1
- e** Solve these equations.
- i**  $11 = x - 4$  1
  - ii**  $8x - 2 = 12x$  1
- f** Light travels at a speed of  $2.9979 \times 10^8$  metres per second. How many kilometres does light travel in one hour? Answer in scientific notation correct to three significant figures. 2
- g** In a 100 m freestyle swimming race the winning time was 48.92 seconds. What is the percentage error (to three decimal places) in this time? 2

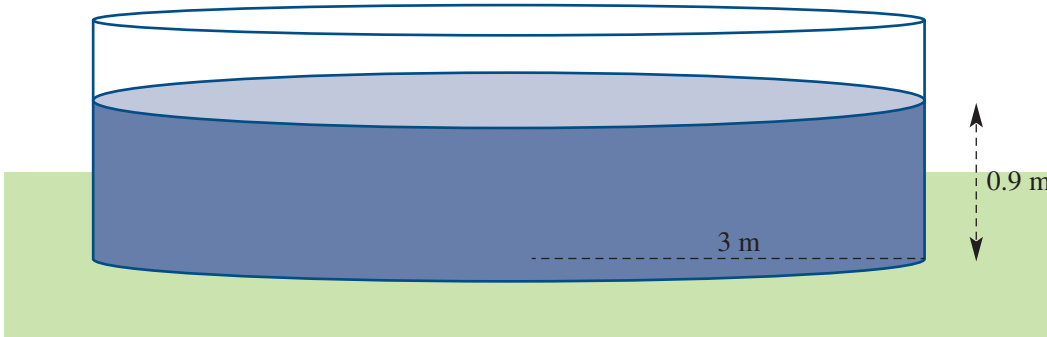
**Question 18 (15 marks)****Marks**

- a** The volume of a solid is given by the formula  $V = \frac{4}{3}\pi r^3$  where  $r$  is the radius.
- i** Write the formula with  $r$  as the subject. 2
  - ii** What is the radius in metres of the solid, given it has a volume of  $2 \text{ m}^3$ ? Answer correct to two decimal places. 1
- b** Henry's room measures 5850 mm by 4950 mm and needs carpeting.
- i** The cost of the carpet is \$90 per  $\text{m}^2$ , and a tradesperson charges \$40 per  $\text{m}^2$  to lay the carpet. What is the cost to have the room carpeted? 2
  - ii** Henry's room has a ceiling height of 2800 mm. He is considering buying heater A, B or C as shown in the table below. 2

<b>Heater A</b>	Rooms up to $70 \text{ m}^3$
<b>Heater B</b>	Rooms up to $80 \text{ m}^3$
<b>Heater C</b>	Rooms up to $90 \text{ m}^3$

Determine the most suitable heater and give a reason for your answer.

- c** An above-ground swimming pool is the shape of a cylinder. It has a radius of 3 metres and contains water to a uniform depth of 0.9 metres.
- i** What is the volume of water in the pool, in cubic metres (two decimal places)? **2**
- ii** How many litres of water are in the pool? Answer correct to the nearest litre. **1**  
( $1\text{m}^3 = 1000\text{ L}$ )



- d** What is the value (two decimal places) of  $\sqrt{\frac{a+3b}{4b}}$  if  $a = 6.4$  and  $b = 2.1$ ? **2**
- e** Make  $x$  the subject of the equation  $y = mx + b$ . **1**
- f** The number of 'standard drinks' in various glasses of wine is shown. **2**

Number of standard drinks			
White wine		Red wine	
Small glass	Large glass	Small glass	Large glass
0.8	1.3	1.0	1.5

Jane weighs 66 kg and drinks two small glasses of white wine and three large glasses of red wine between 7 pm and midnight.

What would be her blood alcohol content (BAC) estimate at midnight?

Answer correct to two significant places.