

[Custom Branding and Formatting Available]

1. In 2019, the population of Singapore was approximately 5 704 000.
This value has been rounded to 4 significant figures.
Write down the greatest possible number for the population.

Answer [1]

2. If $a = -3$, $b = 4$ and $c = -1$, evaluate $a + \sqrt{b^3 + 17c^2}$.

Answer [1]

3. Without the use of a calculator, estimate the value of $\sqrt{401} - 5.01^2 + 3.89^3$.
Correct your answer to 1 significant figure.

Answer [2]

4. Simplify the following expressions, leaving your answers in factorised form where possible.

(a) $\frac{64a^2b}{4ab^2}$

Answer [1]

(b) $8p^2q - 5pq^2 + 2pq + 3pq^2$

Answer [2]

(c) $5m - 2n[11p - 3(7p + m)]$

Answer [2]

5. Solve the following equations

(a) $\frac{1}{4}h - 2 = \frac{h}{5}$

Answer [2]

(b) $\frac{1}{3m+2} + \frac{9}{11} = 1$

Answer [2]

(c) $\frac{19}{15} = \frac{2p+13}{3(2p-1)}$

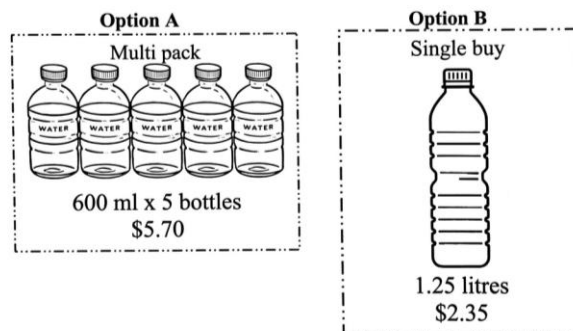
Answer [2]

6. Express as a single fraction.

$$\frac{y-4}{5} - \frac{3y-7}{2} + 4$$

Answer [3]

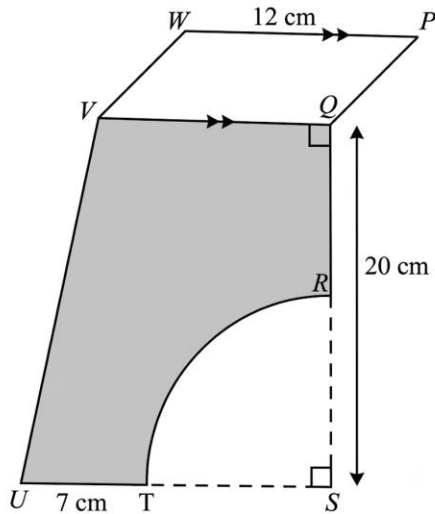
7. Company Q produced two sizes of mineral water of the same brand, shown in the diagram.



Which one of the options shown is a better value for money? Show your working clearly.

Answer [3]

8. In the diagram shown, $PQVW$ is a parallelogram with $WP = 12$ cm.
- (a) The area of $PQVW$ is 75 cm^2 . Find the perpendicular height from W to the line VQ .



Answer [2]

- (b) $VQSU$ is a trapezium with $QS = 20$ cm and $UT = 7$ cm.
 A quadrant RST , with centre S and radius 10 cm, has been removed from the trapezium.
 Find the area of the shape $VQRTU$. Give your answer correct to the nearest whole number.

Answer [2]

- 9.** The distance between Jane's home and office is d km.
She travels at a speed of 48 km/h from her home to the office.

(a) Write an expression in terms of d for the time taken in hours for this journey.

Answer [1]

(b) From the office, she returns home increasing her speed by 12 km/h, travelling the same route. Write an expression in terms of d for the time taken in hours for this journey.

Answer [1]

(c) The difference in time taken for the two journeys is 6 minutes.
Write an equation in terms of d , connecting the two journeys.

Answer [1]

(d) Solve your equation to find the value of d .

Answer [2]