

Chapter Quiz on Simultaneous Equations, Inequalities and Areas and Volumes****Except Question 1, write your answer in separate sheet of paper.**

1. Solve the simultaneous equations $\begin{cases} x + y = 5 \\ x - y = 3 \end{cases}$ graphically. (Use x values as 0, 1, and 2)

2. Use the method of substitution to solve the following simultaneous equations

$$\begin{cases} 2x + y = 2 & \dots\dots\dots (1) \\ x - y = 1 & \dots\dots\dots (2) \end{cases}$$

3. Use the method of elimination to solve the following simultaneous equations

$$\begin{cases} 2x + 3y = 4 & \dots\dots\dots (1) \\ x - 2y = 9 & \dots\dots\dots (2) \end{cases}$$

4. The sum of x and y is 43 and their difference is 15.

If x is larger than y , write the simultaneous equations in x and y . Hence, find the values of x and y .

5. Last Sunday, Mr. Wong and his family ordered 5 dishes of dim-sum of medium size and 2 dishes of dim-sum of large size in a restaurant, and the bill was \$128. Mr. Ho and his family ordered 8 dishes of dim-sum of medium size and 3 dishes of dim-sum of large size, and the bill was \$200. How much did each type of dim-sum cost in the restaurant? (Suppose there were no service charge and no charge for tea.)

6. If $x > 10$, express the ranges of values of b and c in inequalities.

(a) $b = 4x + 17$

(b) $c = -\frac{4x + 17}{19}$

7. Dickson thinks that 'if $a > b > c$, then $\frac{1}{ab} < \frac{1}{ac}$ ' is correct. To point out that the opinion of Dickson

is wrong, give a set of values of a , b and c such that $a > b > c$ and $\frac{1}{ab} \geq \frac{1}{ac}$.

8. Solve each of the following inequalities and represent the solutions graphically.

(a) $\frac{x}{2} > 1$

(b) $3x - 2 \geq 7$

(c) $4 + x \geq 2x + 3$

(d) $5 - \frac{3x}{2} \leq -\frac{x}{2} + 3$

(e) $\frac{1}{8}(2x + 5) < \frac{1}{4}(5x - 3)$

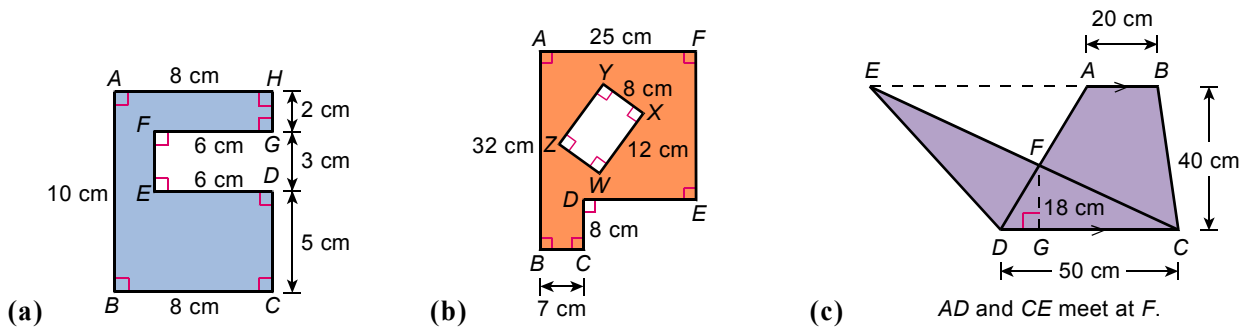
9. Cherry went out for shopping yesterday and today, and the amount she spent today is three times the amount she spent yesterday. If she spent not more than \$300 on shopping in these two days, at most how much did she spend today?

10. The ingredients of the nuts of Brand X, Brand Y and Brand Z in percentage are as follows:

Ingredients	X	Y	Z
Walnut	30%	25%	55%
Almond	30%	50%	30%
Hazelnut	40%	25%	15%

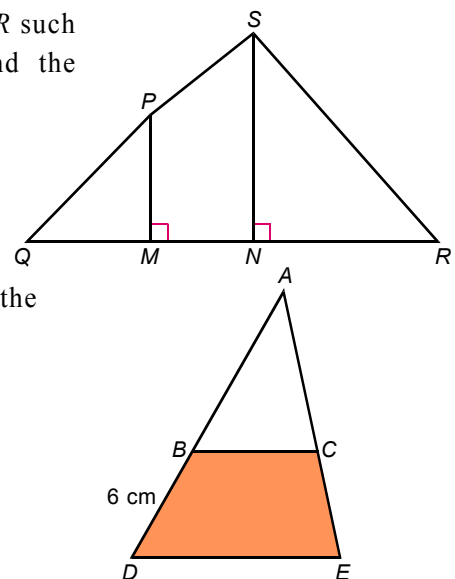
How many kg of nuts from Brand Z should be added to 0.5 kg of nuts from Brand X and 1 kg of nuts from Brand Y, such that there are not less than 20% of hazelnuts in the mixture?

11. Find the area of the shaded region in each of the following figures.



12. The figure shows quadrilateral $PQRS$. If M and N are points on QR such that $PM = 6$ cm, $SN = 10$ cm, $QN = 11$ cm and $RM = 14$ cm, find the area of quadrilateral $PQRS$.

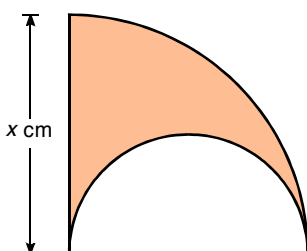
[Hint: Let $MN = x$ cm.]



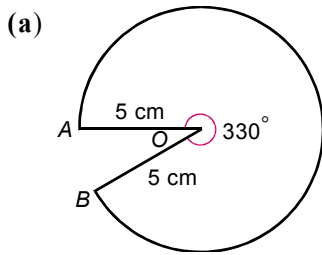
13. In the figure, $\triangle ABC \sim \triangle ADE$. The area of the shaded region and the area of $\triangle ABC$ are 64 cm² and 36 cm² respectively.

- (a) Find the ratio of the area of $\triangle ABC$ to that of $\triangle ADE$.
- (b) Find the length of AB .

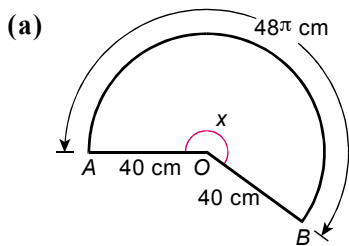
14. The figure is formed by a quadrant, a semi-circle and a straight line. If the area of the shaded region is 100 cm², find the value of x .



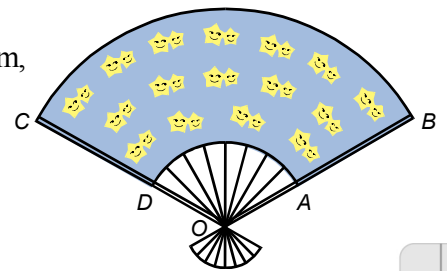
15. Find the length of \widehat{AB} in the following figure.



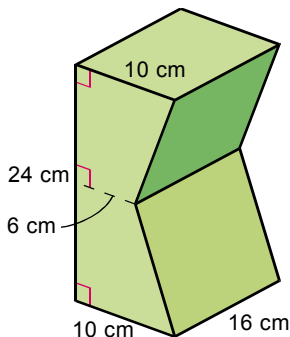
16. Find the value of x in the following figure.



17. The figure shows a paper fan, where $OA = OD = 8$ cm, $AB = DC = 15$ cm and $\angle AOD = 108^\circ$. Find the area of $ABCD$.



18. Find the volume of the following prism.



19. Figure I and Figure II show two containers in the shapes of a cylinder and a square prism respectively. Both the containers are with lids, their heights are both 10 cm, and their volumes are both 500 cm^3 . If the material cost of making the containers is $0.1\text{¢}/\text{cm}^2$, which container has a lower material cost? Explain briefly.

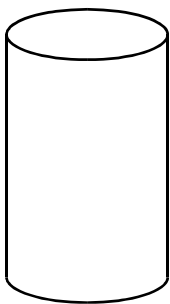


Figure I

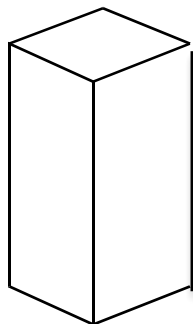


Figure II