

**FIRST TERM EVALUATION - 2018**  
**MATHEMATICS ANSWER KEY**  
**STD IX**

- 1 (a) PB = 4 cm  
 (b) AB = 2 x 4 = 8 cm
- 2 (a) Area of Triangle ABP =  $8 \times \frac{1}{2} = 4 \text{ cm}^2$   
 (b) Area of Triangle ABC =  $4 + 8 + 4 = 16 \text{ cm}^2$
- 3 (a) 7  
 (b)  $2\sqrt{7}$
- 4 (a)  $\frac{1}{4} = 0.25$   
 (b) 0.734
- 5 (a) Perimeter =  $2(\sqrt{8} + \sqrt{2})$ , Area =  $4 \text{ cm}^2$   
 (b)  $AC = \sqrt{10}$
- 6 (a)  $\frac{1}{3} = 0.333\dots$ ,  $\frac{1}{9} = 0.111\dots$   
 (b)  $(0.333\dots)^2 = (\frac{1}{3})^2 = \frac{1}{9} = 0.111\dots$
- 7 (a) 1 : 3  
 (b)  $80 \times \frac{3}{4} = 60 \text{ cm}^2$
- (a) 66  
 (b)  $x + y = 12$   
 $y = 2x - 3$   
 $x = 5$        $y = 7$   
 The number = 57
- 8 (a)  $\frac{7}{14}$
- 9 (b)  $\frac{a}{b} = \frac{p}{q}$ ;  $aq = bp$   
 $\frac{aq}{pq} = \frac{bp}{pq}$ ;  $\frac{a}{p} = \frac{b}{q}$
- (a)  $59 \text{ cm}^2$   
 (b)  $29 \text{ cm}^2$   
 (c)  $59 \text{ cm}^2$
- 10 (a) PQ = 12 cm  
 (b) BC = 6 cm  
 OB = 10 cm
- 11 (a)  $\frac{5+25}{5 \times 6} = 1$   
 (b)  $\frac{n+n^2}{nx(n+1)} = 1$

- 13 (a)  $25 \text{ cm}^2$   
 (b)  $50 \text{ cm}^2$   
 (c) For drawing triangle and dividing into 4 equal triangles.

- 14 (a)  $\angle ADC = 90^\circ$   
 (b)  $CD = \sqrt{3}$ ,  $AC = 2\sqrt{3}$   
 (c)  $6\sqrt{3}$

- (a) Age of child =  $x$   
 Age of Father =  $y$   
 $3x + y = 110$   
 $x + 3y = 170$   
 15  $4x + 4y = 280$   
 $x + y = 70$   
 $2x = 40$   
 $x = 20$ ,  $y = 50$

- 16 (a)  $\angle B = 90^\circ$   
 (b) 3 cm  
 (c) BC is parallel to OP  
 So  $\angle P = 90^\circ$   
 The circle with diameter AO passes through P.  
 P is the mid point of AB.

- 17 (a)  $24 \text{ cm}^2$   
 (b)  $48 \text{ cm}^2$   
 (c)  $Ap = \frac{48}{10} = 4.8 \text{ cm}$

- 18 (a)  $\frac{1}{2}$   
 (b)  $\frac{1}{3}$   
 (c)  $\frac{1}{6}$   
 (d)  $\frac{1}{2} = \frac{1}{4} + \frac{1}{12} + \frac{1}{7} + \frac{1}{42}$

- 19 (a)  $\frac{1}{\sqrt{3}+\sqrt{2}} = \frac{\sqrt{3}-\sqrt{2}}{(\sqrt{3}+\sqrt{2})(\sqrt{3}-\sqrt{2})}$   
 $= 1.732 - 1.414 = 0.318 = 0.32$

- (b)  $\frac{1}{\sqrt{3}-\sqrt{2}} = \frac{\sqrt{3}+\sqrt{2}}{(\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2})}$   
 $= 1.732 + 1.414 = 3.146 = 3.15$

- 20 (a)  $\frac{2}{9}$   
 (b)  $\frac{1}{4} \left( \frac{x}{2x+2} = \frac{2}{6} \cdot \frac{3}{8} \right)$   
 (c)  $\frac{3}{8}$

- 21 (a)  $\frac{7}{8}$   
 (b)  $\frac{6}{5}$   
 (c)  $\frac{17+a}{18+a}, \frac{18}{17}$
- 22 (a) For drawing triangle  
 (b) For Drawing triangle of equal area  
 (c) For writing sides  
 (d) For finding area of triangle ( approximately 24)
- 23 (a)  $\frac{1}{2}$   
 (b)  $\frac{1}{6}$   
 (c)  $\frac{1}{12}$   
 (d)  $1 - \frac{1}{11} = \frac{10}{11}$
- 24 (a)  $3\sqrt{2}$   
 (b)  $3\sqrt{3}$   
 (c)  $3\sqrt{3} - 3 = 0.732$
- 25 (a) 208  
 (b)  $96 \text{ cm}^2$   
 (c)  $(x + y)^2 = 400, (x + y) = 20$   
 $(x - y)^2 = 16, (x - y) = 4$   
 $x = 12, y = 8$
- 26 (a)  $\frac{a+b}{a} + \frac{a+b}{b} = \frac{b(a+b)+a(a+b)}{axb}$   
 $= \frac{ba+ab^2+a^2+ab}{axb} = \frac{(a+b)x(a+b)}{axb}$   
 (b) For finding the sum and product are equal  
 (c)  $\frac{5}{2}$  and  $\frac{5}{3}$
- 27 (a) For Drawing circle and triangle  
 (b) For identifying triangle as right triangle  
 (c) For drawing right triangle and its circumcircle
- 28 (a) 4 : 3  
 (b) 4 : 3  
 (c) For dividing the line in the ratio 4 : 3
- 29 (a) 210  
 (b) 155  
 (c) 99  
 (d) 100  
 (e)  $100 \times 101$