

# SSLC Model Maths 2019 Answer Key

1.

(a).  $d=10$

(b)  $=103$  ( $X_n=3+10n$ )

2.

(a)  $\angle BOD=120$

(b)  $\angle C=120$  ( $\angle A+\angle C=180$ )

3.

$$5(1)^3 - 4(1)^2 + 1 - k = 0, k=2$$

4.

(a)  $\text{radius} = \sqrt{3^2 + 3^2} = \sqrt{18}$

(b)  $(3\sqrt{2}, 0), (-3\sqrt{2}, 0)$

5.

(a).  $a^2 + a^2 = 16$

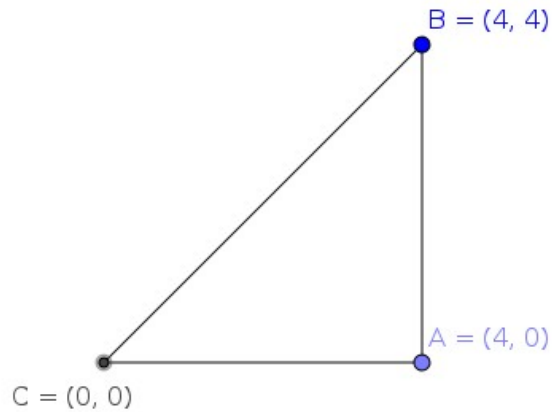
$$2a^2 = 16$$

$$a = 2\sqrt{2}$$

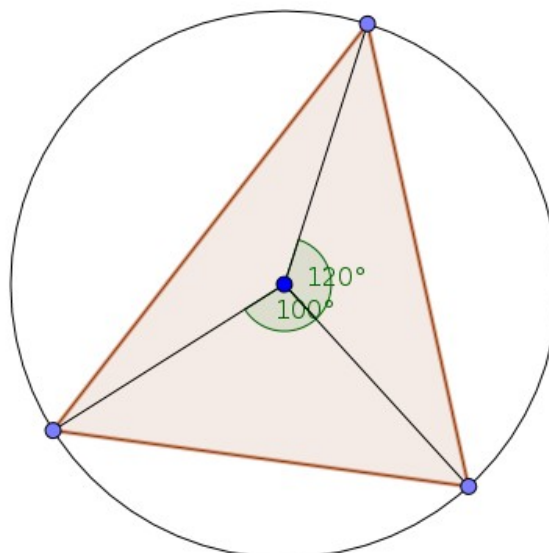
(b) base diagonal of square pyramid = diameter of hemisphere

$$b = 10/\sqrt{2}$$

6.



7.



Maths model answer

8.

(a)  $f=9$

(b)  $X_{20} \cdot X_{10} = 50$

(c)  $(368-9)/5 = 71.8$

can't be the difference

9.

$$x(x+6) = 1216$$

$$(x+3)^2 = 1216 + 9$$

$$x+3 = 35$$

$$x = 32$$

$$l = 38 \quad b = 32$$

10.

(a)  $\angle D = 30$

(b)  $\angle BAD = 90$

$$\sin 30 = 4/AD$$

$$1/2 = 4/AD$$

$$AD = 8$$

11.

$$PA = \sqrt{5^2 - 3^2}$$

$$PA = 4$$

$$\text{Ar}(\square PACB) = 2 \cdot \text{Ar}(\triangle PBC) = 2 \cdot \frac{1}{2} \cdot 4 \cdot 3 = 12 \text{ sq cm}$$

12.



(1,8), (7,3)

$$\text{diagonal} = \sqrt{61}$$

13.

(a)  $P(1) = a - 1 - b - 1 = a - b - 2$

(b)  $a - b = 2$

(c)  $b - a = 2$

(d) = No

14.

(a)  $\text{Volume} = \frac{1}{3} \pi 12^2 \cdot 6 = 288 \pi \text{ c.c.}$

(b)  $r/12 = 3/6$

$r = 6$

(c)

$\frac{1}{3} \pi 6^2 \cdot 3 = 36 \pi \text{ c.c.}$

(d)  $36 : 288 = 1 : 8$

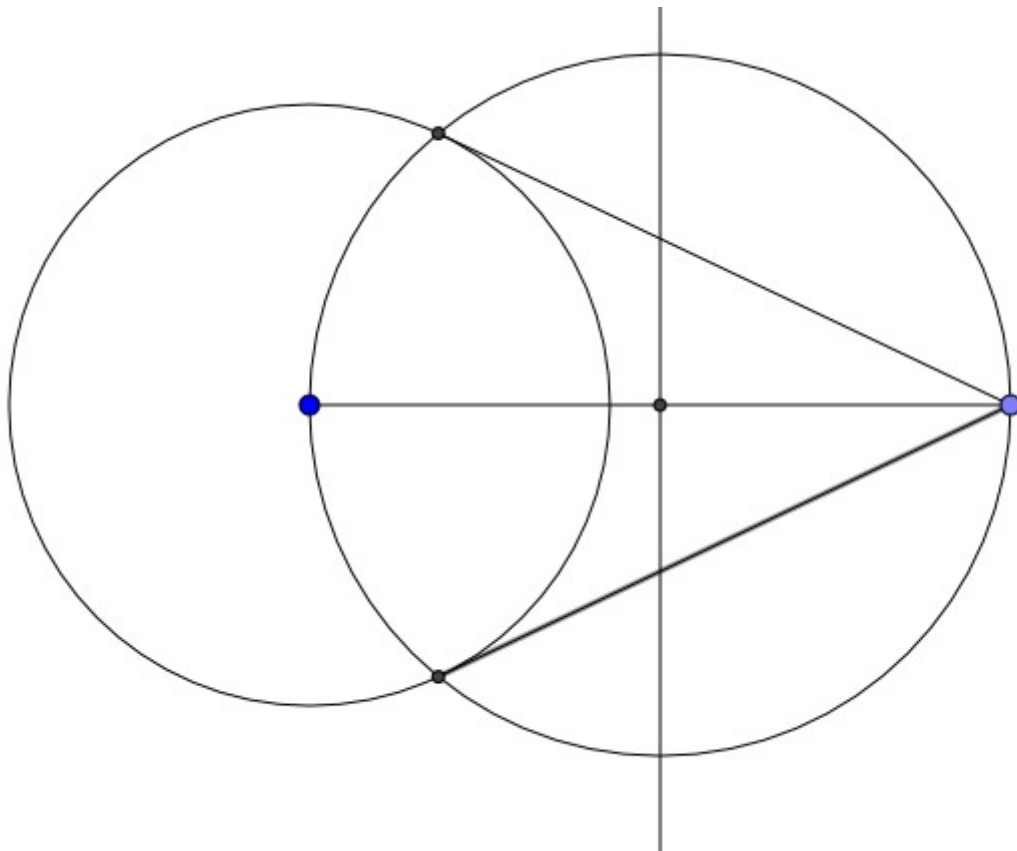
15. E(11,5)

C(11,9)

D(6,9)

diagonals bisect, i.e. mid point of AC(7,7)

16.



17.(a)  $\tan x = a/b$

(b)  $\sin x = a/c$

$\cos x = b/c$

(c)  $\sin x / \cos x = a/c / b/c = a/b = \tan x$

18.

$$\frac{1}{x} + \frac{1}{x+2} = \frac{5}{12}$$

$$5x^2 - 14x - 24 = 0$$

fraction  $\frac{1}{4}, \frac{1}{6}$

19.

(a)  $P(\text{Red}) = \frac{8}{x+8} = \frac{1}{4}$

$$x = 32$$

(b)  $P(\text{green}) = \frac{24}{32} = \frac{3}{4}$

(c) sum = 1

(d) =  $1 - a/b$

20.

a.  $\angle P = 90^\circ$  then p is on circle

b.  $\angle APD = 90^\circ$  then p is on circle

c. if diagonals intersect at right angle then circles drawn with sides as diameter passes through diagonals intersection point

21.

3, 5, 7, ...

$$X_n = 2n + 1$$

$$X_n = \frac{(2n+1)}{6}$$

$2n+1$  is always odd number so not multiple of 6

so  $\frac{(2n+1)}{6}$  can't natural number

22.

a. total students = 41

median score is the score of  $\frac{(41+1)}{2}$  th students

21<sup>st</sup>

15<sup>th</sup> to 24<sup>th</sup> score between 20-30

$$\begin{aligned} \text{median} &= 15^{\text{th}} \text{ students score} + 6 \\ &= 20.6 + 6 = 26.5 \end{aligned}$$

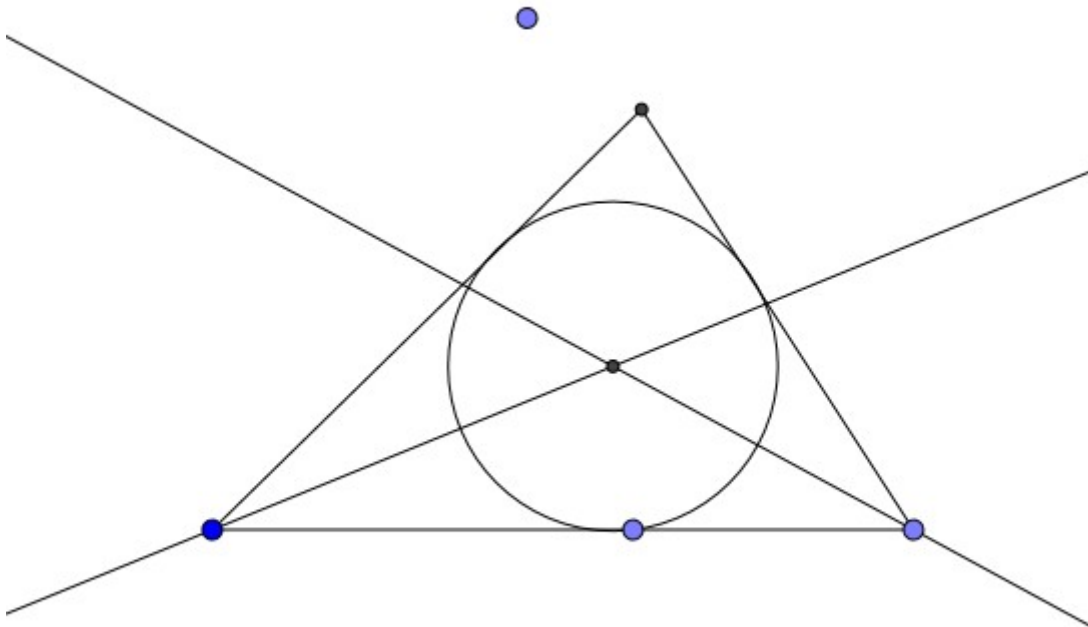
23

a.  $r = \sqrt{13^2 - 12^2} = 5$

b.  $\text{CSA} = 2\pi r h = 2\pi \cdot 5 \cdot 10 = 100\pi$

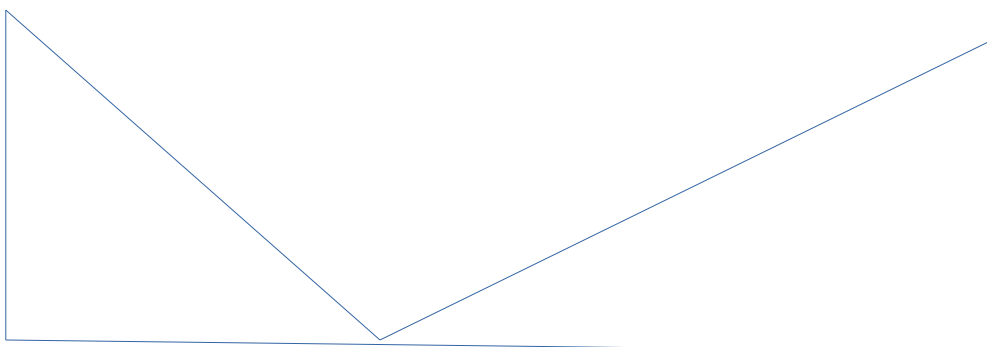
c.  $100\pi + \pi r^2 h = 100\pi + \pi \cdot 5^2 \cdot 10 = 100\pi + 250\pi = 350\pi$  sq cm

24



25

P



A
20
45
30
M
B

$AM=20$   $AB=20$  isoscles triangles  
 $PQ=20$   
 $MP=20\sqrt{3}$

b. distance between buildings  $=20+20\sqrt{3}$

26.

$$\angle a = \angle c$$

$$\angle d = \angle b$$

$$PD = 8 \cdot \frac{6}{4} = 12$$

$$\frac{AD}{BC} = \frac{AP}{PC}$$

$$AD = 8$$

27.

a. Sum of term from  $X_{10}$  to  $X_{18} = 171 - 45 = 126$

b.  $X_5 = S_9 / 9 = 45 / 9 = 5$

c.  $X_{14} = 126 / 9 = 14$

d.  $S_5 - 14 = \frac{10}{2}[5 + X_{14}]$   
 $= 5 \cdot 19 = 95$

28.

a.  $A(-3,-3)$   $B(-3,3)$   $C(3,3)$   $D(-3,3)$

b.  $x + y = 0$

29.

a. 3

b. 9

c.  $3 \cdot 9 = 27 = 2 + 7 = 9$

d.  $6 + 3 + x + 5 = 8 \dots x = 3$

e. 1

f. 1