



Developed by

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Mr. Saju Varghese

STANDARDIZED ACHIEVEMENT TEST

MATHEMATICS – Standard IX

Time: 2½hrs

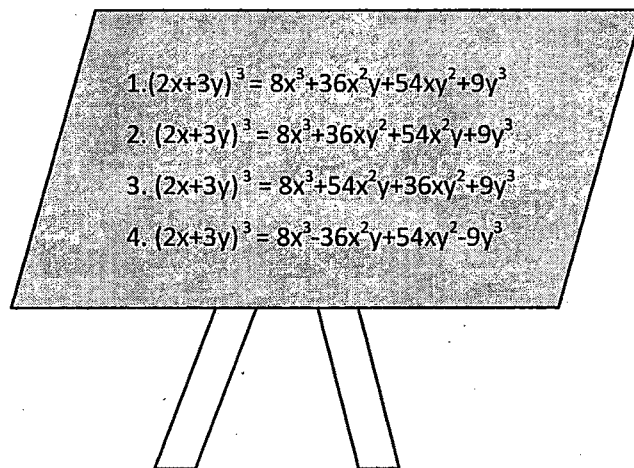
Instructions:-

1. Choose correct answer from brackets
2. All questions are compulsory
3. Each question carries 1 mark

1. Vineetha draws a number of chords in a circle which are equidistant from the centre. What she observe from the chords?

- [(a) Chords are parallel to each other,
(b) Chords are equal,
(c) Chords are bisect each other,
(d) Chords are perpendicular to each other]

2. Lovely is in a confusion!!



Can you help her to find the solution?

- [(a) 1,
(b) 2,
(c) 3,
(d) 4]

3. The following is a polynomial having degree 3.

$$P(x) = 2x^3 - 5x^2 + 7x - 3$$

Which one of the following is true?

- [(a) $P(1) = P(0)$,
- (b) $P(0) > P(1)$,
- (c) $P(1) > P(0)$,
- (d) $[P(0)]^2 = P(1)$]

4. Aheli found that the volume of a cubical vessel is 1728 cm^3 .

What is its surface area?

- [(a) 148 cm^2 ,
- (b) 864 cm^2 ,
- (c) 846 cm^2 ,
- (d) 184 cm^2]

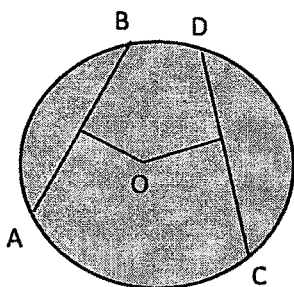
5. If the areas of two similar triangles are 81 cm^2 and 100 cm^2 , then what is the ratio of their perimeters?

- [(a) 3:5,
- (b) 9:10,
- (c) 27:15,
- (d) 3:4]

6. A tank in the shape of a rectangular prism has dimensions 4.2m, 1.5m, and 1.2 m. How many litres of water can contain it?

- [(a) 7.56 litres,
- (b) 75.6 litres,
- (c) 756 litres,
- (d) 7560 litres]

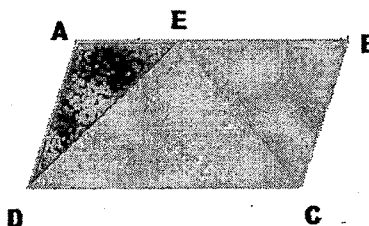
7. In the figure $OM=ON$ and the two lines AB and CD are represented as $5x+3$ and $7x+1$.



What will be the value of x ?

- [(a) 1,
- (b) 3,
- (c) 5,
- (d) 7]

8. Arati divided the parallelogram ABCD in to three triangles. Also Arati found that area of parallelogram is 20 cm^2 . Now Arati want to know the area of the $\triangle DCE$. Can you help her?



- [(a) 6.67 cm^2 ,
- (b) 10 cm^2 ,
- (c) 15 cm^2 ,
- (d) 5 cm^2]

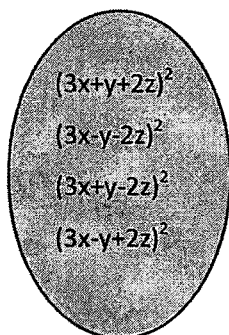
9. Among $h(-2)$, $h(-1)$, $h(1)$ and $h(2)$ which one has the larger value for the polynomial

$$h(x) = 2x^3 - 3x^2 - 7x + 3$$

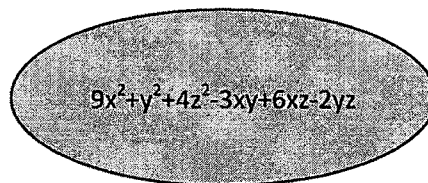
- [(a) $h(-2)$,
- (b) $h(-1)$,
- (c) $h(1)$
- (d) $h(2)$]

10. Which one of the following from set A matches to set B?

Set A

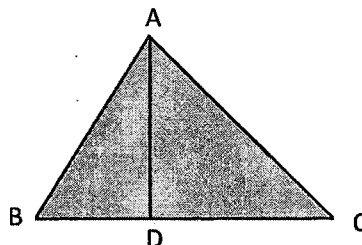


Set B



- [(a) $(3x+y+2z)^2$,
(b) $(3x-y-2z)^2$,
(c) $(3x+y-2z)^2$,
(d) $(3x-y+2z)^2$]

11. In $\triangle ABC$ shown below, suppose $AB=25\text{cm}$ and $AC=26\text{ cm}$. AD perpendicular to BC and $AD=24\text{cm}$. Can you find the area of $\triangle ABC$?



- [(a) 204cm^2 ,
(b) 102cm^2 ,
(c) 408cm^2 ,
(d) 100cm^2]

12. If the diameter of a circle is doubled, how many times then will be the new area by the original area?

- [(a) 2,
(b) 3,
(c) 4,
(d) 6]

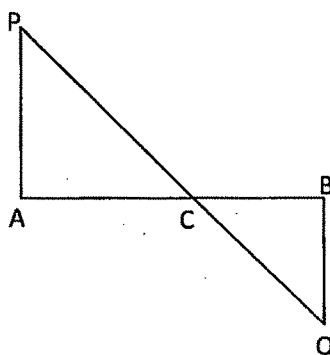
13. In a historical monument a pillar is found to be in the shape of a rectangular prism of length 220cm and breadth 180cm . If its

lateral surface area is equal to the sum of the base areas then what will be its height?

- [(a) 990cm,
- (b) 99cm,
- (c) 188cm,
- (d) 1880cm]

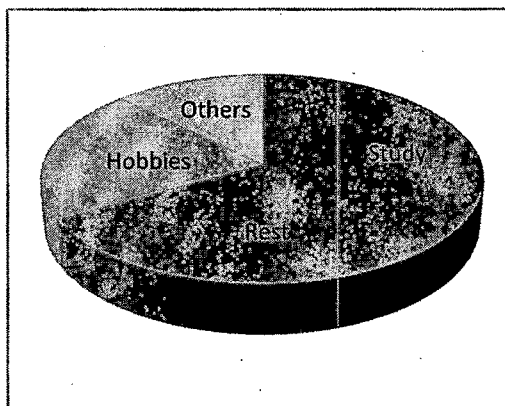
14. In the figure below, AP and BQ are perpendicular to AB. Suppose that $AP = 4\text{cm}$ and $BQ = 2\text{cm}$. What will be $AC : CB$

- [(a) 1 : 2,
- (b) 2 : 1,
- (c) 3 : 1,
- (d) 1 : 3]



15. The following is the pie chart showing the daily time schedule of Aditya. The central angle of the sector representing the study is found to be 135° . How much time does Aditya spend for the study?

- [(a) 6hrs,
- (b) 7hrs,
- (c) 8hrs,
- (d) 9hrs]

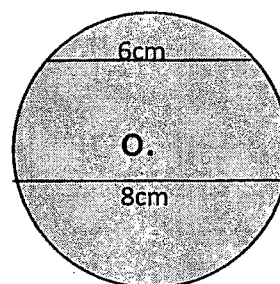


16. Fathima asked to divide a polynomial by $2x+1$, instead divided by $2x-1$. She got the quotient x^2-4x+3 and the remainder 2.

What would have been the quotient had she done the correct problem?

- [(a) $x^2+3x+\frac{1}{2}$,
- (b) $x^2+\frac{1}{2}x+3$,
- (c) $x^2-3x-\frac{1}{2}$,
- (d) $x^2-\frac{1}{2}x-3$]

17. In the following figure 6cm and 8cm chords are facing the centre of a circle having radius 5cm. What is the distance between the chords?



- [(a) 7cm,
- (b) 3cm,
- (c) 4cm,
- (d) 2cm]

18. Ashmith walking at the speed of 3 km/hr takes 12 minutes to walk around a regular hexagonal garden. What is the area of the garden?

- [(a) 25950m²,
- (b) 29550m²,
- (c) 25590m²,
- (d) 20595m²]

19. The Electricity Department acquired a plot in the shape of an equilateral triangle having an area 17.3 Ares. They want to put a wire fence around it. How much wire is needed if each side is to have four rows of wire?

- [(a) $60\sqrt{3}$ m,
- (b) $80\sqrt{3}$ m,
- (c) $180\sqrt{3}$ m,
- (d) $240\sqrt{3}$ m]

20. If $a^2(a+3b)=208$ and $b^2(3a+b)=135$, then what will be the value of $(a+b)$?

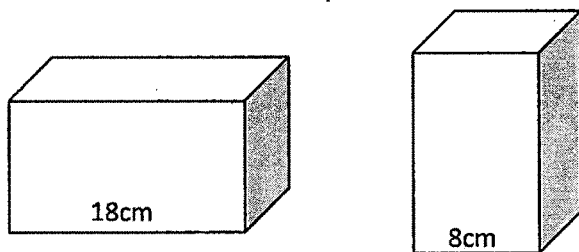
[(a) 343,

(b) 7,

(c) 9,

(d) 73]

21. Each side of a metal cube is 18cm long. It is melted and recast in to a square prism with each side of the base 8cm long.



What is the change in the surface area?

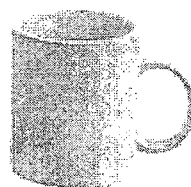
[(a) 3044cm^2 ,

(b) 1944cm^2 ,

(c) 1602cm^2 ,

(d) 1100cm^2]

22. The handle of a coffee mug is a circular arc of length 9cm. If it makes an angle of 176° with the centre of the circle from which it is cut off. What is the radius of this circle?



[(a) 3.04cm,

(b) 2.9cm,

(c) 2.83cm,

(d) 3.14cm]

23. A boy 1.2 meters tall standing 2.5 meters away from a street lamp casts shadow 1.5 meters long. What is the height of the lamp post?

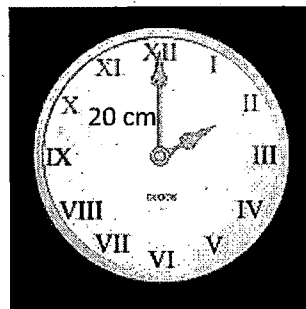
- [(a) 3.1 cm,
- (b) 1.3 cm,
- (c) 2.3 cm,
- (d) 3.2 cm]

24. A ballot box is in the shape of a square prism with each side of the base 30cm long and height 45cm. Two such boxes are to be given to each booth in a constituency with 380 polling booths. If the price of one square meter of iron costs Rs.75/-, how much money is needed for making these ballot boxes?

- [(a) Rs.41040,
- (b) Rs.44010,
- (c) Rs.40140,
- (d) Rs.44100]

25. The minute hand of the following clock is 20cm long. What is the area it sweeps from 2.00 pm to 2.15 pm?

- [(a) 314cm^2 ,
- (b) 693cm^2 ,
- (c) 639cm^2 ,
- (d) 341cm^2]



26. If the length of each side of a triangle is doubled, then how many times the area will increase?

- [(a) 2 times,
- (b) 4 times,
- (c) 6 times,
- (d) 8 times]

27. Matilda have bicycle with radius of the wheel is 34 cm. How far does she travel when the wheel make 5 complete rotation?



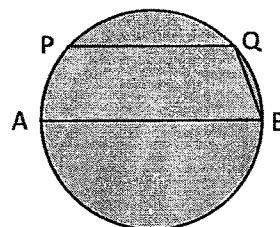
- [(a) 10.6m,
(b) 9.6m,
(c) 30m,
(d) 29m]

28. In the division shown below identify the missing terms indicated by blank circles.

$$\begin{array}{r}
 \boxed{} - \boxed{} + 5 \\
 2x + \boxed{} \overline{) 4x^3 - \boxed{} + 6x + \boxed{}} \\
 \underline{ + 2x^2} \\
 - 8x^2 + \boxed{} + \boxed{} \\
 \underline{ - \boxed{} + \boxed{}} \\
 10x + \bigcirc \\
 \underline{ + \bigcirc} \\
 \bigcirc
 \end{array}$$

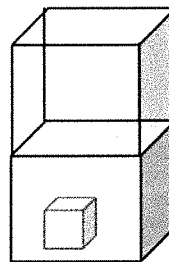
- [(a) 10, 5, 5,
(b) 8, 6, 2,
(c) 7, 7, 0,
(d) 5, 5, 0]

29. In the picture, PQ is a chord parallel to the diameter AB. If AB = 50cm and PQ = 14cm, find BQ.



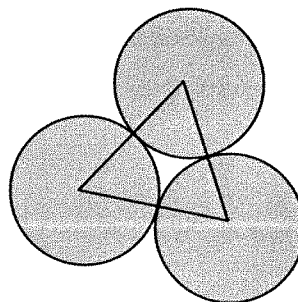
- [(a) 20cm,
(b) 49cm,
(c) 25 cm,
(d) 30 cm]

30. A vessel in the shape of a square prism with each side of base 16cm contains water 10cm high. If a cube of side 8cm is completely immersed in it. How much will the water level rise?



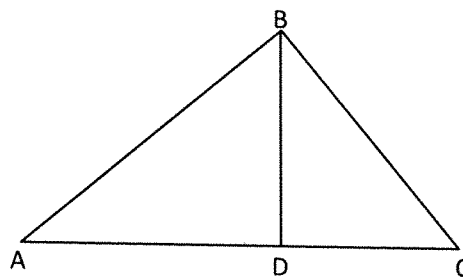
- [(a) 1cm,
(b) 2cm,
(c) 3cm,
(d) 4cm]

31. With each vertex of an equilateral triangle as centre a circle is drawn as shown in the picture. If the area of the triangle is 17300 sq.cm, then what is the area of the white portion inside the triangle?



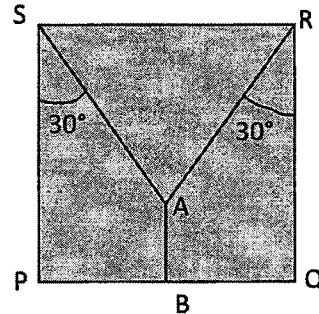
- [(a) 1600cm²,
(b) 1700cm²,
(c) 15700cm²,
(d) 15600cm²]

32. $\triangle ABC$ is a right angled triangle with $\angle B = 90^\circ$. The altitude through B meets AC at D. What do you observe?

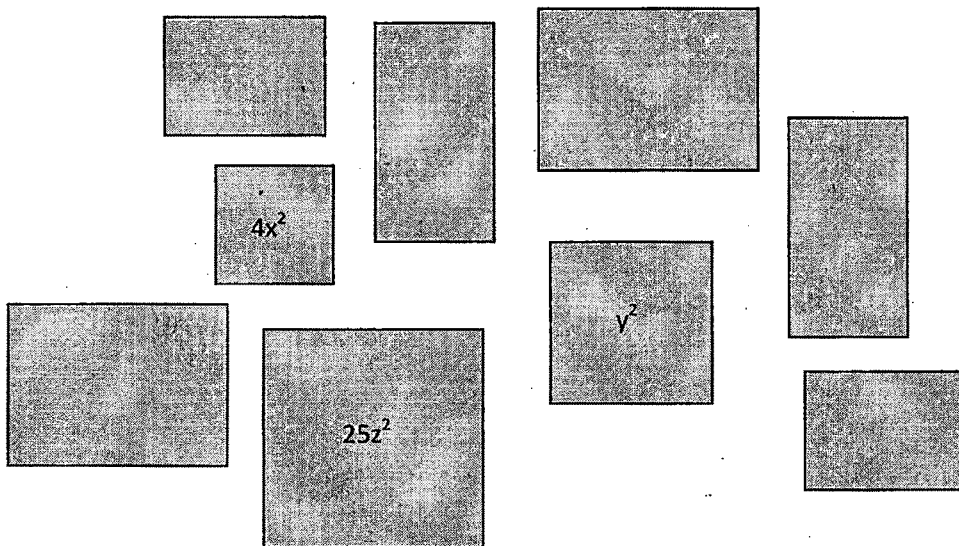


- [(a) $\triangle ABC \sim \triangle ADC$,
(b) $\triangle ABC \sim \triangle BDC$,
(c) $\triangle BDC \sim \triangle ADC$,
(d) Above three are right]

33. In the picture below, PQRS is a square and $\angle PSA = \angle QRA = 30^\circ$. The perpendicular from A to PQ meets it at B. If the perimeter of the square is 160cm, what is the length of AB?



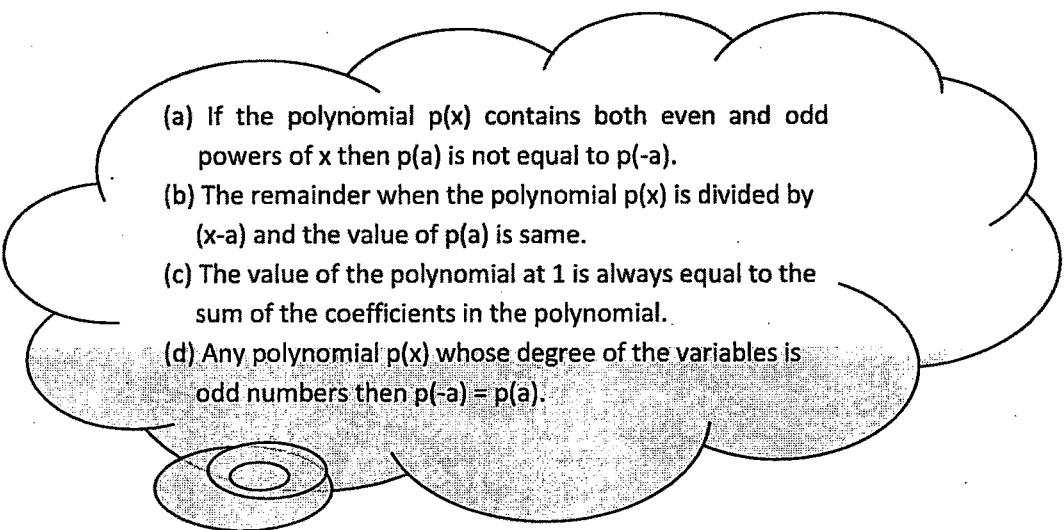
- [(a) 5.4 cm,
(b) 4.5cm,
(c) 6.5cm,
(d) 5.6cm]
34. The following are some squares and rectangles. The three squares are labeled as $4x^2$, y^2 and z^2 .



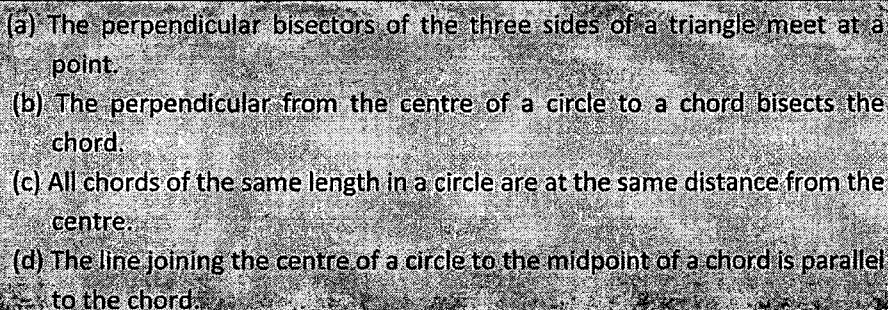
By rearranging these squares and rectangle you will get an identity. Identify it?

- [(a) $(2x+5z)^2+y^2 = 4x^2+y^2+25z^2+20xz$,
(b) $(4x+y+25z)^2 = 4x^2+y^2+25z^2+20xz+ 8xy+10yz$,
(c) $(2x+y+5z)^2 = 4x^2+y^2+25z^2+20xz+ 10xy+8yz$,
(d) $(2x+y+5z)^2 = 4x^2+y^2+25z^2+20xz+ 8xy+10yz]$

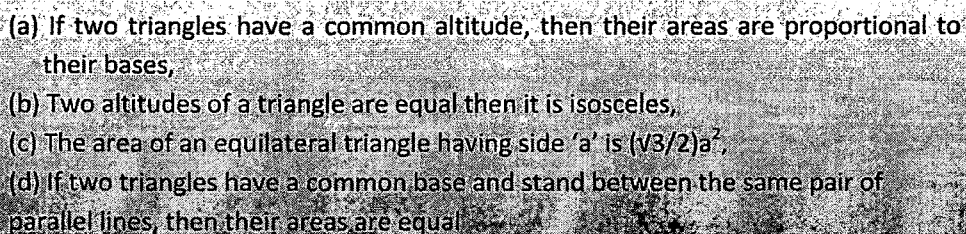
35. Which one of the following statement is not correct?

- 
- (a) If the polynomial $p(x)$ contains both even and odd powers of x then $p(a)$ is not equal to $p(-a)$.
 - (b) The remainder when the polynomial $p(x)$ is divided by $(x-a)$ and the value of $p(a)$ is same.
 - (c) The value of the polynomial at 1 is always equal to the sum of the coefficients in the polynomial.
 - (d) Any polynomial $p(x)$ whose degree of the variables is odd numbers then $p(-a) = p(a)$.

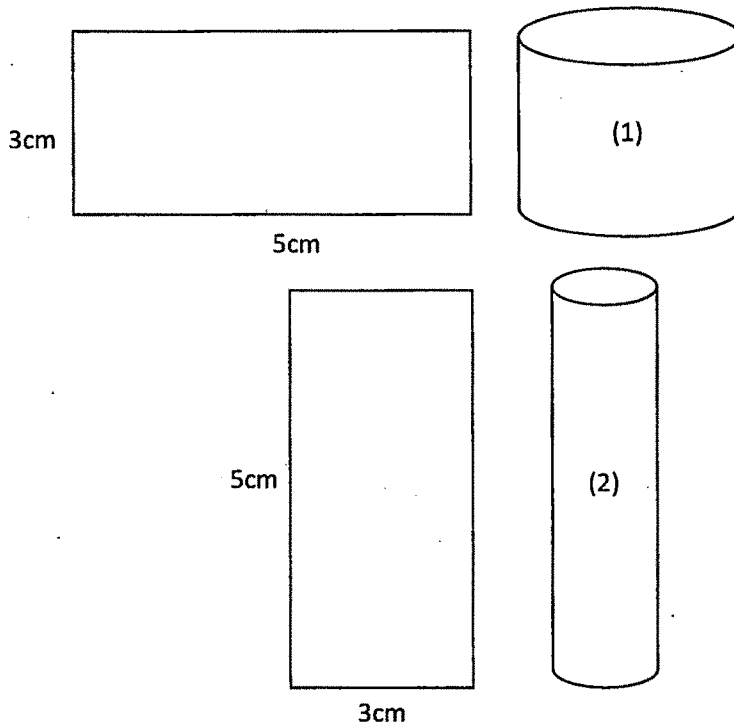
36. Which of the following is statement is not true?

- 
- (a) The perpendicular bisectors of the three sides of a triangle meet at a point.
 - (b) The perpendicular from the centre of a circle to a chord bisects the chord.
 - (c) All chords of the same length in a circle are at the same distance from the centre.
 - (d) The line joining the centre of a circle to the midpoint of a chord is parallel to the chord.

37. Which one of the following statement is not correct?

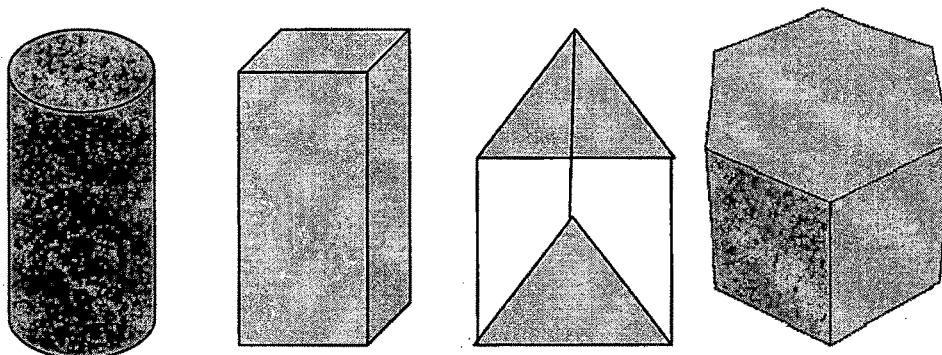
- 
- (a) If two triangles have a common altitude, then their areas are proportional to their bases,
 - (b) Two altitudes of a triangle are equal then it is isosceles,
 - (c) The area of an equilateral triangle having side ' a ' is $(\sqrt{3}/2)a^2$,
 - (d) If two triangles have a common base and stand between the same pair of parallel lines, then their areas are equal

38. Arun made two cylinders with the rectangular cardboard having length 5cm and breadth 3cm in the following way.



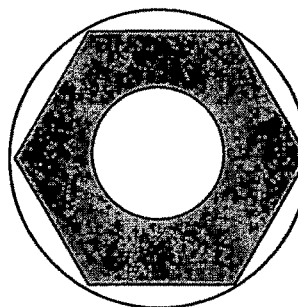
What he observed regarding the volume of the two cylinders?

- [(a) Volume of cylinder (1) > Volume of cylinder (2),
 - (b) Volume of cylinder (1) < Volume of cylinder (2),
 - (c) Volume of cylinder (1) = Volume of cylinder (2),
 - (d) None of these]
39. The following Cylinder, Square prism, Regular hexagonal prism and Equilateral prism having the same base perimeter and height. Arrange them in ascending order according to their volume.



- [(a) Equilateral prism - Square prism - Cylinder - Regular hexagonal prism,
(b) Equilateral prism - Square prism - Regular hexagonal prism - Cylinder,
(c) Equilateral prism - Regular hexagonal prism - Square prism - Cylinder,
(d) Equilateral prism - Cylinder - Square prism - Regular hexagonal prism]

40. The picture shows the cross section of an iron bolt. If the circumference of the outer circle is 16π and the circumference of the inner circle is 12π , find the area of the shaded portion in the picture.



- [(a) 52cm^2 ,
(b) 53cm^2 ,
(c) 54cm^2 ,
(d) 55cm^2]

SCORING KEY

1. b	21. d
2. a	22. b
3. c	23. d
4. b	24. a
5. b	25. b
6. d	26. b
7. a	27. b
8. b	28. d
9. b	29. c
10. d	30. b
11. c	31. a
12. c	32. d
13. b	33. a
14. b	34. d
15. a	35. a
16. c	36. d
17. a	37. c
18. a	38. a
19. d	39. c
20. b	40. b
