BYJU'S The Learning App

Time : 1 Hour 15 Minute

Full Marks : 50

ODISHA BOARD CLASS 10 SSC MATHS PREVIOUS YEAR PAPER-2017

SET : A

π ର ମୂଲ୍ୟ $\frac{22}{7}$ ନିଅ $\left(\text{Take } \pi = \frac{22}{7}\right)$

ଏହି ବିଭାଗରେ 50ଟି ପ୍ରଶ୍ନ ଦିଆଯାଇଛି । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନ ପାଇଁ ଚାରୋଟି ବିକଳ୍ପ ଉତ୍ତର ଦିଆଯାଇଛି । ସେଥି ମଧ୍ୟରୁ ଠିକ୍ ଉତ୍ତରଟି ବାଛି OMR ଉତ୍ତର ପତ୍ରରେ ଥିବା ସଂପୃକ୍ତ ବୃତ୍ତଟିକୁ କଳା/ନୀଳ ବଲ୍‌ପଏଣ୍ଟ କଲମ ଦ୍ୱାରା ସମ୍ପୂର୍ଣ୍ଣଭାବେ କଳା/ନୀଳ କର ।

In this Part **50** questions are given. Each question has **four** alternative answers. Choose the correct answer from them and darken the appropriate circle completely in the OMR sheet with the **Blue/Black** ball point pen.

ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନର ମୂଲ୍ୟ 1 (ଏକ) ନମ୍ବର ।

Each question carries **1 (one)** mark.

ସମସ୍ତ ପ୍ରଶ୍ନର ଉତ୍ତର ଦିଅ ।

Answer **all** questions.

1. ନିମ୍ନସ୍ଥ କେଉଁ ସମୀକରଣଟି (0, 0) କ୍ରମିତ ଯୋଡ଼ି ଦ୍ୱାରା ସିଦ୍ଧ ହେବ ?

(A) $3x + 2y = 1$

(B) $2(x + 1) + 3(y - 1) = 0$

(C) $2(x + 3) - 3(y + 2) = 0$

(D) $2x + 3y = 1$

1. Which of the following equations will be satisfied by the ordered pair (0, 0) ?

(A) $3x + 2y = 1$

(B) $2(x + 1) + 3(y - 1) = 0$

(C) $2(x + 3) - 3(y + 2) = 0$

(D) $2x + 3y = 1$

2. ଯଦି ମାଟ୍ରିକ୍ସ $A = \begin{pmatrix} 5 & 7 \\ 2 & 1 \end{pmatrix}$, ତେବେ ଡିଟରମିନାଣ୍ଟ |A| ର ମାନ କେତେ ?

(A) –9 (B) 7

(C) –7 (D) 9

2. If matrix $A = \begin{pmatrix} 5 & 7 \\ 2 & 1 \end{pmatrix}$, then what is the value of the determinant |A| ?

(A) –9 (B) 7

(C) –7 (D) 9

3. $ax + by + 5 = 0$ ଓ $2x + y + 1 = 0$ ସମୀକରଣଦ୍ୱୟ ଅସଙ୍ଗତ ହେଲେ, a : b କେତେ ହେବ ?

(A) 1 : 4 (B) 2 : 1
(C) 1 : 2 (D) 4 : 1

4. $x^2 - 5x + 6 = 0$ ସମୀକରଣର ମୂଳଦ୍ୱୟ α ଓ β ହେଲେ, $\frac{1}{\alpha}+\frac{1}{\beta}$ ର ମାନ କେତେ ?

(A) $\frac{6}{5}$ (B) $-\frac{5}{6}$
(C) $-\frac{6}{5}$ (D) $\frac{5}{6}$

5. ଗୋଟିଏ ଦ୍ୱିଘାତ ସମୀକରଣର ମୂଳଦ୍ୱୟର ସମଷ୍ଟି 4 ଓ ଗୁଣଫଳ $\frac{-5}{2}$ । ନିମ୍ନସ୍ଥ ସମୀକରଣମାନଙ୍କ ମଧ୍ୟରୁ କେଉଁଟି ଉକ୍ତ ସମୀକରଣ ?

(A) $2x^2 - 8x + 5 = 0$
(B) $2x^2 + 8x - 5 = 0$
(C) $2x^2 - 8x - 5 = 0$
(D) $2x^2 + 8x + 5 = 0$

6. ଗୋଟିଏ ସଂଖ୍ୟା ଓ ଏହାର ବ୍ୟୁତ-କ୍ରମର ସମଷ୍ଟି 3 । ସଂଖ୍ୟାଟି x ହେଲେ, ଆବଶ୍ୟକ ଦ୍ୱିଘାତ ସମୀକରଣଟି କ'ଣ ?

(A) $x^2 - 3x + 2 = 0$
(B) $x^2 + 3x + 1 = 0$
(C) $x^2 - 3x + 1 = 0$
(D) $x^2 + 3x + 2 = 0$

3. If the equations $ax + by + 5 = 0$ and $2x + y + 1 = 0$ are inconsistent, then what is the value of a : b ?

(A) 1 : 4 (B) 2 : 1
(C) 1 : 2 (D) 4 : 1

4. If the roots of the equation $x^2 - 5x + 6 = 0$ are α and β, then what is the value of $\frac{1}{\alpha}+\frac{1}{\beta}$?

(A) $\frac{6}{5}$ (B) $-\frac{5}{6}$
(C) $-\frac{6}{5}$ (D) $\frac{5}{6}$

5. For a quadratic equation, the sum of the roots is 4 and their product is $-\frac{5}{2}$. Which of the following equations is the said equation ?

(A) $2x^2 - 8x + 5 = 0$
(B) $2x^2 + 8x - 5 = 0$
(C) $2x^2 - 8x - 5 = 0$
(D) $2x^2 + 8x + 5 = 0$

6. The sum of a number and its reciprocal is 3. If the number is x, then what is the required quadratic equation ?

(A) $x^2 - 3x + 2 = 0$
(B) $x^2 + 3x + 1 = 0$
(C) $x^2 - 3x + 1 = 0$
(D) $x^2 + 3x + 2 = 0$

7. ଗୋଟିଏ ସଂଖ୍ୟା ଓ ତାହାର ଧନାତ୍ମକ ବର୍ଗମୂଳର ସମଷ୍ଟି $\frac{1}{2}$ । ସଂଖ୍ୟାଟି ନିର୍ଣ୍ଣୟ କରିବାପାଇଁ ଗଠିତ ସମୀକରଣଟି କ'ଣ ହେବ ?

(A) $4x^2 - 8x + 1 = 0$

(B) $4x^2 + 8x + 1 = 0$

(C) $x^2 + 8x + 1 = 0$

(D) $x^2 - 8x + 1 = 0$

8. ଗୋଟିଏ A.P. ର, $t_n = 2n - 1$ ହେଲେ, ଉକ୍ତ A.P.ର ସାଧାରଣ ଅନ୍ତର କେତେ ?

(A) 2 (B) –3

(C) 3 (D) –2

9. ଗୋଟିଏ ସମାନ୍ତର ପ୍ରଗତିରେ ଯଦି a = 3, d = 4 ଓ n = 10 ହୁଏ, ତେବେ S_n ର ମାନ କେତେ ?

(A) 210 (B) 110

(C) 105 (D) 420

10. ନିମ୍ନଲିଖିତ ଅନୁକ୍ରମ ମଧ୍ୟରୁ କେଉଁଟି ସମାନ୍ତର ପ୍ରଗତି ନୁହେଁ ?

(A) $\frac{1}{3}, \frac{2}{3}, \frac{3}{3}, \frac{4}{3}, \ldots$

(B) 1.1, 2.3, 3.5, 4.7, ...

(C) –3, –2, 0, 3, 7, 12, ...

(D) 1, 2, 3, 4, 5, ...

7. The sum of a number and its positive square root is $\frac{1}{2}$. What will be the equation to find the number ?

(A) $4x^2 - 8x + 1 = 0$

(B) $4x^2 + 8x + 1 = 0$

(C) $x^2 + 8x + 1 = 0$

(D) $x^2 - 8x + 1 = 0$

8. In an A.P., $t_n = 2n - 1$. What is the common difference of the A.P. ?

(A) 2 (B) –3

(C) 3 (D) –2

9. In an A.P. if a = 3, d = 4 and n = 10, then what is the value of S_n ?

(A) 210 (B) 110

(C) 105 (D) 420

10. Which one of the following sequences is not an Arithmetic progression ?

(A) $\frac{1}{3}, \frac{2}{3}, \frac{3}{3}, \frac{4}{3}, \ldots$

(B) 1.1, 2.3, 3.5, 4.7, ...

(C) –3, –2, 0, 3, 7, 12, ...

(D) 1, 2, 3, 4, 5, ...

11. ଏକ ମୁଦ୍ରାକୁ ଦୁଇଥର ଟସ୍ କରାଗଲା । ଅତିକମ୍‌ରେ ଗୋଟିଏ H ଆସିବାର ସମ୍ଭାବ୍ୟତା କେତେ ?

(A) $\frac{2}{4}$ (B) $\frac{3}{4}$

(C) $\frac{4}{4}$ (D) $\frac{1}{4}$

12. ଗୋଟିଏ ଲୁଡୁ ଗୋଟିକୁ ଥରେ ଗଡ଼ାଗଲା । ଫଳ 7 ରୁ କମ୍ ଆସିବାର ସମ୍ଭାବ୍ୟତା କେତେ ?

(A) $\frac{1}{6}$ (B) 1

(C) 0 (D) $\frac{5}{6}$

13. 'M' ମାଧ୍ୟମାନ ବିଶିଷ୍ଟ 20 ଟି ଲବ୍‌ଧାଙ୍କ ମଧ୍ୟରୁ ପ୍ରତ୍ୟେକକୁ 2 ବଢାଇଦେଲେ, ନୂତନ ଲବ୍‌ଧାମାନଙ୍କର ମାଧ୍ୟମାନ କେତେ ହେବ ?

(A) M – 2
(B) M + 2
(C) 2M
(D) M

14. ଯଦି 8, 5, 6, 7, x ଓ 4 ଲବ୍‌ଧାଙ୍କମାନଙ୍କର ମାଧ୍ୟମାନ 6.5 ହୁଏ, x ର ମାନ କେତେ ହେବ ?

(A) 10 (B) 11
(C) 12 (D) 9

11. A coin is tossed two times. What is the probability of getting atleast one H ?

(A) $\frac{2}{4}$ (B) $\frac{3}{4}$

(C) $\frac{4}{4}$ (D) $\frac{1}{4}$

12. A dice is rolled once, what is the probability of getting less than 7 as outcome ?

(A) $\frac{1}{6}$ (B) 1

(C) 0 (D) $\frac{5}{6}$

13. If each of the 20 scores with mean M is increased by 2, then what will be the mean of the new scores ?

(A) M – 2
(B) M + 2
(C) 2M
(D) M

14. If the mean of the scores 8, 5, 6, 7, x and 4 is 6.5, then what is the value of x ?

(A) 10 (B) 11
(C) 12 (D) 9

15. ଏକ ତଥ୍ୟାବଳୀର ମାଧ୍ୟମାନ M, ମଧ୍ୟମା M_d ଓ ଗରିଷ୍ଠକ M_o ମଧ୍ୟରେ ଥିବା ଆନୁଭବିକ ସମ୍ବନ୍ଧଟି କ'ଣ ?

(A) $M_o = 3M_d - 2M$

(B) $M_o = 2M - 3M_d$

(C) $M_o = 2M_d - 3M$

(D) $M_o = 3M - 2M_d$

16. ପ୍ରଥମ 20 ଟି ଗଣନ ସଂଖ୍ୟାର ମାଧ୍ୟମାନ କେତେ ?

(A) 10.5 (B) $\frac{21}{20}$

(C) 11 (D) 10

15. What is the empirical relation among the mean M, median M_d and mode M_o of a set of data ?

(A) $M_o = 3M_d - 2M$

(B) $M_o = 2M - 3M_d$

(C) $M_o = 2M_d - 3M$

(D) $M_o = 3M - 2M_d$

16. What is the mean of the first 20 counting numbers ?

(A) 10.5 (B) $\frac{21}{20}$

(C) 11 (D) 10

17. 5, 6, 7, 7, 8, 8, 9, 9, 9, 9, 10, 11, 12, 12 ର ଗରିଷ୍ଠକ କେତେ ?

(A) 9 (B) 10

(C) 11 (D) 8

18. ପ୍ରଥମ 10 ଟି ଗଣନ ସଂଖ୍ୟାର ମଧ୍ୟମା, ପ୍ରଥମ 9 ଟି ଗଣନ ସଂଖ୍ୟାର ମଧ୍ୟମାଠାରୁ କେତେ ବେଶୀ ?

(A) 0.5 (B) 1

(C) 1.5 (D) 0

17. What is the mode of 5, 6, 7, 7, 8, 8, 9, 9, 9, 9, 10, 11, 12, 12 ?

(A) 9 (B) 10

(C) 11 (D) 8

18. By how much is the median of the first 10 counting numbers greater than the median of the first 9 counting numbers ?

(A) 0.5 (B) 1

(C) 1.5 (D) 0

19. ΔABC ର A, B ଓ C ବିନ୍ଦୁମାନଙ୍କର ସ୍ଥାନାଙ୍କ ଯଥାକ୍ରମେ (1, 2), (2, 4) ଓ (3, 5) । ଉକ୍ତ ତ୍ରିଭୁଜର $\overline{AD}$ ଏକ ମଧ୍ୟମା ହେଲେ, D ବିନ୍ଦୁର ସ୍ଥାନାଙ୍କ କେତେ ?

(A) (2.5, 4.5)

(B) (1.5, 3)

(C) (2, 3.5)

(D) (5, 9)

20. (4, 2) ଓ (K, –6) ବିନ୍ଦୁଦ୍ୱୟର ସଂଯୋଜକ ରେଖାଖଣ୍ଡର ମଧ୍ୟବିନ୍ଦୁ (1, –2) ହେଲେ, Kର ମାନ କେତେ ?

19. The co-ordinates of the points A, B & C of the ΔABC are (1, 2), (2, 4) and (3, 5) respectively. If $\overline{AD}$ is a median of the triangle, then what are the coordinates of the point D ?

(A) (2.5, 4.5)

(B) (1.5, 3)

(C) (2, 3.5)

(D) (5, 9)

20. If the mid-point of the line segment joining the points (4, 2) and (K, –6) is (1, –2), then what is the value of K ?

(A) –3
(B) –4
(C) –5
(D) –2

21. K ର ମାନ କେତେ ହେଲେ, (K, –2), (2, 5) ଓ (2, 10) ବିନ୍ଦୁତ୍ରୟ ଏକ ସରଳ ରେଖାରେ ରହିବେ ?

(A) 2 (B) 3
(C) 4 (D) 1

22. ନିମ୍ନସ୍ଥ ମଧ୍ୟରୁ x ର ମାନ କେତେ ହେଲେ, (4, 0) ଓ (0, x) ବିନ୍ଦୁଦ୍ୱୟ ମଧ୍ୟରେ ଦୂରତା 5 ଏକକ ହେବ ?

(A) 3 (B) 4
(C) 5 (D) 2

(A) –3
(B) –4
(C) –5
(D) –2

21. What is the value of K for which the three points (K, –2), (2, 5), (2, 10) become collinear ?

(A) 2 (B) 3
(C) 4 (D) 1

22. From the following, for what value of x, the distance between the points (4, 0) and (0, x) will be 5 units ?

(A) 3 (B) 4
(C) 5 (D) 2

23. ଏକ ତ୍ରିଭୁଜର ଶୀର୍ଷବିନ୍ଦୁ ତ୍ରୟ (0, 0), (0, 3) ଓ (–4, 0) ହେଲେ, ସେ ତ୍ରିଭୁଜର କ୍ଷେତ୍ରଫଳ କେତେ ବର୍ଗ ଏକକ ?

(A) 7 (B) 6

(C) 5 (D) 8

24. t ର କେଉଁ ମାନପାଇଁ (1, 1), ସମୀକରଣ $tx + 3y - 9 = 0$ ର ଏକ ସମାଧାନ ହେବ ?

(A) 6

(B) 9

(C) 12

(D) 3

25. k ର ମାନ କେତେ ହେଲେ, $x + ky = 2$ ଓ $4x + 12y = 8$ ସହ ସମୀକରଣ ଦ୍ୱୟର ଅସଂଖ୍ୟ ସମାଧାନ ରହିବ ?

(A) 4

(B) 2

(C) 1

(D) 3

23. How many square units is the area of the triangle whose vertices are (0, 0), (0, 3) and (–4, 0) ?

(A) 7 (B) 6

(C) 5 (D) 8

24. For which value of t, (1, 1) will be a solution of the equation $tx + 3y - 9 = 0$?

(A) 6

(B) 9

(C) 12

(D) 3

25. For what value of k, the pair of simultaneous equations $x + ky = 2$ and $4x + 12y = 8$ will have infinite number of solutions ?

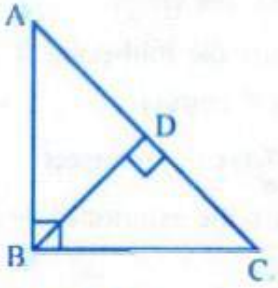
(A) 4

(B) 2

(C) 1

(D) 3

26. ଦତ୍ତ ଚିତ୍ରରେ, ΔABCର $m\angle ABC = 90°$ ଏବଂ $\overline{BD} \perp \overline{AC}$,ତେବେ $AD \times DC$ ନିମ୍ନସ୍ଥ କେଉଁଟି ସହ ସମାନ ?



(A) $AD \times AC$

(B) BC^2

(C) BD^2

(D) $CD \times CA$

27. ΔABCରେ $\angle ACB$ର ସମଦ୍ୱିଖଣ୍ଡକ $\overline{AB}$କୁ M ବିନ୍ଦୁରେ ଛେଦ କରେ । $AB = 10$ ସେ.ମି., $BC = 12$ ସେ.ମି. ଓ $AC = 8$ ସେ.ମି. ହେଲେ, AM କେତେ ସେ.ମି. ହେବ ?

(A) $\frac{1}{4}$ (B) 4

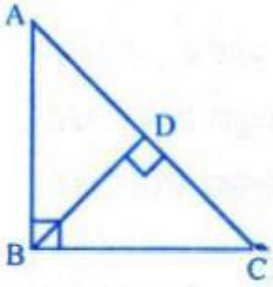
(C) 6 (D) $\frac{1}{6}$

28. ଏକ ସୁଷମ ଦଶଭୁଜର ପ୍ରତ୍ୟେକ ବାହୁ ଏହାର ପରିବୃତ୍ତର କେନ୍ଦ୍ରଠାରେ ଉତ୍ପନ୍ନ କରୁଥିବା କେନ୍ଦ୍ରସ୍ଥ କୋଣର ପରିମାଣ କେତେ ?

(A) 45° (B) 60°

(C) 72° (D) 36°

26. In the given figure of ΔABC, $m\angle ABC = 90°$ and $\overline{BD} \perp \overline{AC}$. Then which of the following is equal to $AD \times DC$?



(A) $AD \times AC$

(B) BC^2

(C) BD^2

(D) $CD \times CA$

27. Bisector of $\angle ACB$ of ΔABC intersects $\overline{AB}$ at M. If $AB = 10$ cm, $BC = 12$ cm and $AC = 8$ cm, then what is AM in cm ?

(A) $\frac{1}{4}$ (B) 4

(C) 6 (D) $\frac{1}{6}$

28. What is the measure of the angle subtended by one side of a regular decagon at the centre of its circum-circle ?

(A) 45° (B) 60°

(C) 72° (D) 36°

29. ଗୋଟିଏ ବୃତ୍ତର ଦୁଇଟି ଅସମାନ୍ତର ଜ୍ୟାର ସମଦ୍ୱିଖଣ୍ଡକ ଲମ୍ବଦ୍ୱୟର ଛେଦବିନ୍ଦୁ କେଉଁଠାରେ ଅବସ୍ଥିତ ?

(A) ବୃତ୍ତ ଉପରେ

(B) ଗୋଟିଏ ବ୍ୟାସର ମଧ୍ୟବିନ୍ଦୁରେ

(C) ଛେଦ ନ କରି ପାରନ୍ତି

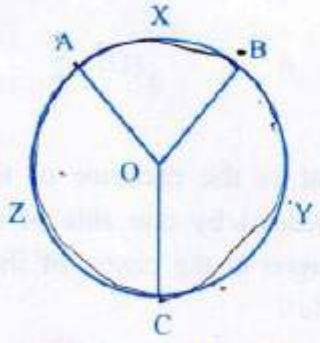
(D) ବୃତ୍ତର ବହିର୍ଦେଶରେ

30. 10 ସେ.ମି. ବ୍ୟାସାର୍ଦ୍ଧ ବିଶିଷ୍ଟ ଏକ ବୃତ୍ତର କେନ୍ଦ୍ରଠାରୁ ଉକ୍ତ ବୃତ୍ତର 16 ସେ.ମି. ଦୀର୍ଘ ଏକ ଜ୍ୟା ପ୍ରତି ଅଙ୍କିତ ଲମ୍ବର ଦୈର୍ଘ୍ୟ କେତେ ସେ.ମି. ହେବ ?

(A) 12 (B) 9

(C) 6 (D) 18

31. ABC ବୃତ୍ତର କେନ୍ଦ୍ର 'O' । $m\overset{\frown}{BYC} = 140°$ ହେଲେ, $m\angle BAC$ କେତେ ହେବ ?



(A) 65° (B) 60°

(C) 50° (D) 70°

29. Where does the point of intersection of the perpendicular bisectors of two non-parallel chords of a circle lie ?

(A) On the circle

(B) At the mid-point of a diameter of a circle

(C) May not intersect

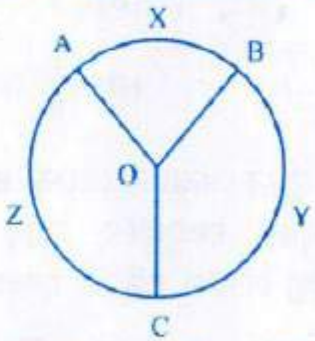
(D) In the exterior of the circle

30. What is the length in cm. of the perpendicular drawn from the centre of a circle of radius 10 cm to a chord of it of length 16 cm ?

(A) 12 (B) 9

(C) 6 (D) 18

31. 'O' is the centre of the circle ABC. If $m\overset{\frown}{BYC} = 140°$, then what is $m\angle BAC$?



(A) 65° (B) 60°

(C) 50° (D) 70°

32. ଗୋଟିଏ ବୃତ୍ତର ଏକ ଚାପର ଦୈର୍ଘ୍ୟ, ବ୍ୟାସାର୍ଦ୍ଧ ସହିତ ସମାନ । ଏହି ଚାପର ପରିପୂରକ ଚାପର ଅନ୍ତର୍ଲିଖିତ କୋଣର ପରିମାଣ କେତେ ?

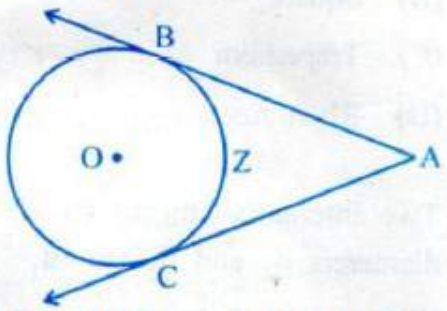
(A) 1^c

(B) $\frac{90^\circ}{\pi}$

(C) $\frac{\pi^\circ}{180}$

(D) $\frac{180^\circ}{\pi}$

33. BZC ବୃତ୍ତର କେନ୍ଦ୍ର O ଏବଂ A ରୁ ବୃତ୍ତପ୍ରତି ଅଙ୍କିତ ସ୍ପର୍ଶକ ଦ୍ୱୟର ସ୍ପର୍ଶବିନ୍ଦୁ B ଓ C । ଯଦି $m\angle BAC = 64^\circ$ ହେଲେ, $m\overset{\frown}{BZC}$ କେତେ ହେବ ?



(A) 116° (B) 118°

(C) 120° (D) 114°

34. ପରସ୍ପରକୁ ବହିଃସ୍ପର୍ଶ କରୁଥିବା ଦୁଇଟି ବୃତ୍ତ ପ୍ରତି ସର୍ବାଧିକ କେତୋଟି ସାଧାରଣ ସ୍ପର୍ଶକ ଅଙ୍କନ କରାଯାଇପାରିବ ?

(A) 2 (B) 3

(C) 4 (D) 1

32. The length of an arc of a circle is equal to the radius. What is the measure of the inscribed angle of its supplementary arc ?

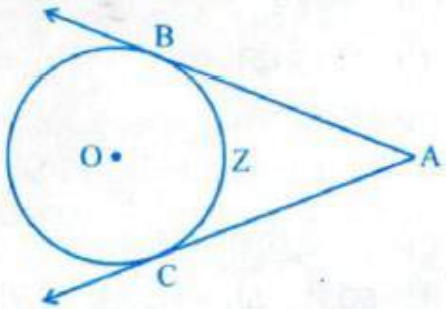
(A) 1^c

(B) $\frac{90^\circ}{\pi}$

(C) $\frac{\pi^\circ}{180}$

(D) $\frac{180^\circ}{\pi}$

33. In the given figure, O is the centre of the circle BZC. The point of contact of two tangents drawn from A are B and C. If $m\angle BAC = 64^\circ$, then what is $m\overset{\frown}{BZC}$?



(A) 116° (B) 118°

(C) 120° (D) 114°

34. In the maximum, how many common tangents can be drawn to two externally touching circles ?

(A) 2 (B) 3

(C) 4 (D) 1.

35. 'r' ଏକକ ବ୍ୟାସାର୍ଦ୍ଧ ବିଶିଷ୍ଟ ଏକ ବୃତ୍ତର କେନ୍ଦ୍ରଠାରୁ 'p' ଏକକ ଦୂରତା (p > r) ରେ ଥିବା ଏକ ବିନ୍ଦୁରୁ ଉକ୍ତ ବୃତ୍ତ ପ୍ରତି ଅଙ୍କିତ ସ୍ପର୍ଶକଖଣ୍ଡର ଦୈର୍ଘ୍ୟ କେତେ ଏକକ ହେବ ?

(A) $p \times r$

(B) $\sqrt{p^2 + r^2}$

(C) $\sqrt{p^2 - r^2}$

(D) $p + r$

36. ଯଦି ଗୋଟିଏ ସାମାନ୍ତରିକ ଚିତ୍ରର ପ୍ରତ୍ୟେକ ଶୀର୍ଷବିନ୍ଦୁ ଏକ ବୃତ୍ତ ଉପରେ ରହେ, ତେବେ ନିମ୍ନସ୍ଥ କେଉଁ ଚିତ୍ର ମିଳିବ ?

(A) ଆୟତଚିତ୍ର

(B) ବର୍ଗଚିତ୍ର

(C) ଟ୍ରାପଜିୟମ୍

(D) ରମ୍ବସ୍

37. ଦୁଇଟି ଅନ୍ତଃସ୍ପର୍ଶୀ ବୃତ୍ତର ବ୍ୟାସ d_1 ଓ d_2 ସେ.ମି. ($d_1 > d_2$), ସେମାନଙ୍କର କେନ୍ଦ୍ରଦ୍ୱୟ ମଧ୍ୟରେ ଦୂରତା କେତେ ସେ.ମି. ?

(A) $\frac{d_2 + d_1}{2}$

(B) $d_1 - d_2$

(C) $\frac{d_1 - d_2}{2}$

(D) $d_2 + d_1$

35. How many units is the length of the tangent-segment drawn to a circle of radius 'r' units from a point lying at a distance of 'p' (p > r) units from the centre of the circle ?

(A) $p \times r$

(B) $\sqrt{p^2 + r^2}$

(C) $\sqrt{p^2 - r^2}$

(D) $p + r$

36. If each of the vertices of a parallelogram lies on a circle, then which of the following figures is obtained ?

(A) Rectangle

(B) Square

(C) Trapezium

(D) Rhombus

37. Two internally tangent circles have diameters d_1 and d_2 cm ($d_1 > d_2$). What is the distance between their centres in cm ?

(A) $\frac{d_2 + d_1}{2}$

(B) $d_1 - d_2$

(C) $\frac{d_1 - d_2}{2}$

(D) $d_2 + d_1$

38. 88 ମିଟର ଦୀର୍ଘ ଖଣ୍ଡେ ତାରରୁ 7 ସେ.ମି. ବ୍ୟାସାର୍ଦ୍ଧ ବିଶିଷ୍ଟ କେତୋଟି ବୃତ୍ତ ତିଆରି କରାଯାଇପାରିବ ?

(A) 100 (B) 50
(C) 40 (D) 200

39. ଗୋଟିଏ ବୃତ୍ତକଳାର କ୍ଷେତ୍ରଫଳ 1848 ବର୍ଗସେ.ମି. । ଏହାର ସଂପୃକ୍ତ ଚାପର ଡିଗ୍ରୀ ପରିମାପ 120° ହେଲେ, ବ୍ୟାସାର୍ଦ୍ଧ କେତେ ସେ.ମି. ?

(A) 21 (B) 42
(C) 84 (D) 11

40. 18 ସେ.ମି. ବ୍ୟାସାର୍ଦ୍ଧ ବିଶିଷ୍ଟ ଏକ ଅର୍ଦ୍ଧବୃତ୍ତ ଆକୃତିର କାଗଜ ଖଣ୍ଡକୁ ଏକ ବୃହତ୍ତମ କୋନ୍‌ରେ ପରିଣତ କଲେ, କୋନ୍‌ଟିର ଆଧାରର ବ୍ୟାସ କେତେ ସେ.ମି. ହେବ ?

(A) 18 (B) $\frac{9}{\pi}$
(C) $\frac{18}{\pi}$ (D) 9

38. How many circles of radius 7 cm can be made out of a piece of wire of 88 metres long ?

(A) 100 (B) 50
(C) 40 (D) 200

39. The area of a sector is 1848 square cm. If the degree measure of its corresponding arc is 120°, what is its radius in cm ?

(A) 21 (B) 42
(C) 84 (D) 11

40. What will be diameter, in cm, of the base of the greatest cone formed out of a semicircular sheet of paper of radius 18 cm ?

(A) 18 (B) $\frac{9}{\pi}$
(C) $\frac{18}{\pi}$ (D) 9

41. ଗୋଟିଏ ସିଲିଣ୍ଡରର ଆଧାରର ବ୍ୟାସାର୍ଦ୍ଧ ଓ ଉଚ୍ଚତା ଯଥାକ୍ରମେ ଗୋଟିଏ କୋନ୍‌ର ଆଧାରର ବ୍ୟାସାର୍ଦ୍ଧ ଓ ଉଚ୍ଚତା ସହ ସମାନ ହେଲେ, ସେମାନଙ୍କର ଆୟତନର ଅନୁପାତ କେତେ ?

(A) 3 : 1 (B) 2 : 3
(C) 1 : 2 (D) 2 : 1

42. ଗୋଟିଏ ସିଲିଣ୍ଡର ଆକୃତିର ଖୋଲାକୁଣ୍ଡର ଭିତର ପାଖର ବ୍ୟାସାର୍ଦ୍ଧ 1 ମି. 40 ସେ.ମି. ଓ ଉଚ୍ଚତା 1 ମି. ହେଲେ, ଏଥିରେ ଅତିବେଶୀରେ କେତେ ଘନମିଟର ପାଣି ରହିବ ?

(A) 61.6 (B) 1.66
(C) 16.6 (D) 6.16

41. The radius of the base of a cylinder and its height are respectively equal to the radius of the base of a cone and its height. What is the ratio of their volumes ?

(A) 3 : 1 (B) 2 : 3
(C) 1 : 2 (D) 2 : 1

42. An open tank is in the shape of a cylinder of radius 1 m 40 cm and height 1 m. What is the maximum quantity of water, in cubic metre, it can hold ?

(A) 61.6 (B) 1.66
(C) 16.6 (D) 6.16

43. $\cos 1^\circ \cdot \cos 2^\circ \cdot \cos 3^\circ \ldots \cos 100^\circ$ ର ମୂଲ୍ୟ କେତେ ?

(A) 2 (B) 1
(C) 0 (D) 3

44. ABC ସମକୋଣୀ ତ୍ରିଭୁଜରେ $m\angle B = 90^\circ$ । ଯଦି $\sin (A - C) = \frac{1}{2}$ ହୁଏ, ତେବେ $\angle A$ ର ପରିମାଣ କେତେ ?

(A) 45° (B) 60°
(C) 75° (D) 30°

45. $P > 90^\circ$ ଏବଂ $\sin P = \cos Q$ ହେଲେ, ନିମ୍ନ ଉକ୍ତିମାନଙ୍କ ମଧ୍ୟରୁ କେଉଁଟି ଠିକ୍ ?

(A) $P + Q = 90^\circ$ (B) $Q - P > 90^\circ$
(C) $P - Q > 90^\circ$ (D) $P - Q = 90^\circ$

43. What is the value of $\cos 1^\circ \cdot \cos 2^\circ \cdot \cos 3^\circ \ldots \cos 100^\circ$?

(A) 2 (B) 1
(C) 0 (D) 3

44. A right angled triangle ABC is right angled at B. If $\sin (A - C) = \frac{1}{2}$, then what is $m\angle A$?

(A) 45° (B) 60°
(C) 75° (D) 30°

45. If $P > 90^\circ$ and $\sin P = \cos Q$, then which of the following statements is correct ?

(A) $P + Q = 90^\circ$ (B) $Q - P > 90^\circ$
(C) $P - Q > 90^\circ$ (D) $P - Q = 90^\circ$

46. $\sin A = \frac{5}{13}$ ହେଲେ, $\cot A$ = କେତେ ହେବ ?

(A) $\frac{12}{13}$ (B) $\frac{5}{12}$

(C) $\frac{12}{5}$ (D) $\frac{13}{12}$

47. ଗୋଟିଏ ସ୍ଥାନରୁ ଏକ ଅଟ୍ଟାଳିକାର ଶୀର୍ଷର କୌଣିକ ଉନ୍ନତିର ପରିମାଣ 15° ହେଲେ, ଉକ୍ତ ଅଟ୍ଟାଳିକାର ଶୀର୍ଷରୁ ସେହି ସ୍ଥାନର କୌଣିକ ଅବନତିର ପରିମାଣ କେତେ ?

(A) 45° (B) 60°

(C) 15° (D) 30°

46. If $\sin A = \frac{5}{13}$, what is the value of $\cot A$?

(A) $\frac{12}{13}$ (B) $\frac{5}{12}$

(C) $\frac{12}{5}$ (D) $\frac{13}{12}$

47. If the angle of elevation of the top of a building from a place is 15°, then what is the angle of depression of that place from the top of the said building ?

(A) 45° (B) 60°

(C) 15° (D) 30°

48. $\Delta ABC \sim \Delta DEF$ । ଯଦି AB = 12 ସେ.ମି., AC = 9 ସେ.ମି. ଓ DE = 6 ସେ.ମି. ହୁଏ, ତେବେ DF କେତେ ସେ.ମି. ?

(A) 4.5 (B) 5.5

(C) 6.5 (D) 3.5

49. ଦତ୍ତ ଚିତ୍ରରେ, $\overline{DE} \parallel \overline{BC}$ ଓ AD : DB = 2 : 3, ΔADE ର କ୍ଷେତ୍ରଫଳ ଓ DBCE ଟ୍ରାପିଜିୟମ୍‌ର କ୍ଷେତ୍ରଫଳର ଅନୁପାତ କେତେ ?

48. $\Delta ABC \sim \Delta DEF$, if AB = 12 cm, AC = 9 cm and DE = 6 cm, then what is DF in cm ?

(A) 4.5 (B) 5.5

(C) 6.5 (D) 3.5

49. In the given figure, $\overline{DE} \parallel \overline{BC}$ and AD : DB = 2 : 3. What is the ratio of the area of ΔADE and area of the trapezium DBCE ?

(A) $\frac{4}{21}$ (B) $\frac{4}{9}$

(C) $\frac{2}{3}$ (D) $\frac{4}{25}$

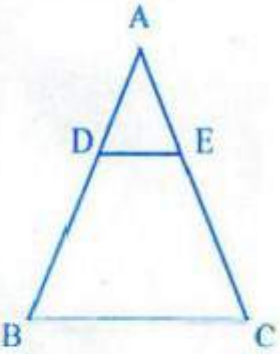
50. ΔPQRରେ, ∠P ଏକ ସମକୋଣ । P ବିନ୍ଦୁରୁ $\overline{QR}$ ବାହୁପ୍ରତି ଅଙ୍କିତ ଲମ୍ବଦ୍ୱାରା ତତ୍ତ୍ୱ ତ୍ରିଭୁଜଟି କେତେ ଯୋଡ଼ା ଭିନ୍ନ ସଦୃଶ ତ୍ରିଭୁଜରେ ପରିଣତ ହୁଏ ?

(A) ତିନି ଯୋଡ଼ା

(B) ଚାରି ଯୋଡ଼ା

(C) ପାଞ୍ଚ ଯୋଡ଼ା

(D) ଦୁଇ ଯୋଡ଼ା



(A) $\frac{4}{21}$ (B) $\frac{4}{9}$

(C) $\frac{2}{3}$ (D) $\frac{4}{25}$

50. In ΔPQR, ∠P is a right angle. If a perpendicular is drawn from the vertex P to the side $\overline{QR}$, then how many different pairs of similar triangles will be available ?

(A) Three pairs

(B) Four pairs

(C) Five pairs

(D) Two pairs