



Class 11 Mathematics | Sets

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. If $A = \{1, 2, 3\}$ and $B = \{3, 4\}$, find $A \cup B$.

A. $\{1, 2, 3, 4\}$ B. $\{1, 2\}$ C. $\{1, 2, 3, 3, 4\}$ D. $\{3\}$

2. If $A = \{2, 4, 6, 8\}$ and $B = \{4, 8, 12\}$, find $A \cap B$.

A. $\{4, 8\}$ B. $\{2, 4, 6, 8, 12\}$ C. $\{2, 6\}$ D. $\{12\}$

3. For $A = \{1, 3, 5\}$ and $B = \{3, 4\}$, $A - B$ equals:

A. $\{3\}$ B. $\{1, 5\}$ C. $\{1, 3, 4, 5\}$ D. $\{4\}$

4. How many subsets does a four-element set have?

A. 8 B. 16 C. 15 D. 4

5. How many proper subsets does a three-element set have?

A. 6 B. 8 C. 3 D. 7

6. If $n(A) = 18$, $n(B) = 15$ and $n(A \cap B) = 7$, find $n(A \cup B)$.

A. 11 B. 26 C. 40 D. 33

7. In $U = \{1, 2, 3, 4, 5\}$, if $A = \{2, 4\}$, find A' .

A. $\{1, 3, 5\}$ B. $\{1, 2, 3\}$ C. $\{5\}$ D. $\{2, 4\}$

8. Which set is empty?

A. $\{\text{real } x: x^2 + 1 = 0\}$ B. $\{\text{natural } x: x < 2\}$
C. $\{0\}$ D. $\{x: x^2 = 0\}$

9. If $A \subseteq B$, then $A \cap B$ is:

A. B B. $\emptyset$ C. $A - B$ D. A

10. Which identity is always true?

A. $(A \cup B)' = A' \cap B'$ B. $A - B = B - A$
C. $A \cap A' = U$ D. $(A \cup B)' = A' \cup B'$

11. If $A = \{1, 2\}$ and $B = \{2, 3\}$, then $(A \cup B) - (A \cap B)$ is:

A. $\{1, 3\}$ B. $\{1, 2, 3\}$ C. $\{2\}$ D. $\emptyset$

12. If A and B are disjoint, $n(A \cup B)$ equals:

A. 0 B. $n(A) - n(B)$ C. $n(A) + n(B)$ D. $n(A)n(B)$

13. Which statement is true for every set A?

A. $A = \emptyset$ B. $\emptyset \in A$ C. $\emptyset \subseteq A$ D. $A \subseteq \emptyset$

14. The interval $(-2, 3]$ contains which number?

A. -3 B. 3 C. 4 D. -2

15. If $A = \{x \in \mathbb{Z}: -2 < x \leq 2\}$, then $n(A)$ is:

A. 3 B. 2 C. 4 D. 5

ANSWER KEY — check after completing all 15 questions

1.A 2.A 3.B 4.B 5.D 6.B 7.A 8.A 9.D 10.A 11.A 12.C 13.C 14.B 15.C



Class 11 Mathematics | Relations And Functions

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. If A has 3 elements and B has 2, $n(A \times B)$ is:

A. 5 B. 9 C. 8 D. 6

2. If $(x+1, 3) = (4, y-2)$, find (x, y) .

A. (4, 3) B. (3, 5) C. (5, 3) D. (3, 1)

3. For $R = \{(1, 2), (2, 4), (3, 4)\}$, the range is:

A. {2, 4} B. {4} C. {1, 2, 3} D. {1, 2, 3, 4}

4. Which relation defines a function on {1, 2}?

A. $\{(1, 3), (2, 3)\}$ B. $\{(1, 2), (2, 3), (2, 4)\}$
C. $\{(1, 2)\}$ D. $\{(1, 2), (1, 3)\}$

5. The real domain of $f(x) = \sqrt{x-3}$ is:

A. $[3, \infty)$ B. R C. $(3, \infty)$ D. $(-\infty, 3]$

6. The real domain of $f(x) = 1/(x^2-9)$ is:

A. R B. $R - \{-9, 9\}$ C. $R - \{-3, 3\}$ D. $R - \{3\}$

7. If $f(x) = 2x^2 - 1$, then $f(-2)$ is:

A. 9 B. -9 C. 7 D. 3

8. The range of $f(x) = x^2$ on R is:

A. $(-\infty, 0]$ B. R C. $[0, \infty)$ D. $(0, \infty)$

9. If $f(x) = \text{absolute value of } x$, $f(-5) - f(2)$ equals:

A. -7 B. 3 C. 7 D. -3

10. If $f(x) = 3x + 1$ and $f(a) = 10$, find a.

A. $11/3$ B. -3 C. 9 D. 3

11. The greatest integer not exceeding -1.2 is:

A. 0 B. -2 C. -3 D. -1

12. The signum function at $x=0$ has value:

A. 1 B. Undefined C. -1 D. 0

13. How many functions map a two-element set to a three-element set?

A. 3 B. 9 C. 8 D. 6

14. If $f(x) = x + 2$ and $g(x) = x - 1$, then $(f+g)(3)$ is:

A. 6 B. 7 C. 5 D. 9

15. If $f(x) = x^2$ and $g(x) = x + 1$, then $(f/g)(2)$ is:

A. 2 B. 4 C. $3/4$ D. $4/3$

ANSWER KEY — check after completing all 15 questions

1.D 2.B 3.A 4.A 5.A 6.C 7.C 8.C 9.B 10.D 11.B 12.D 13.B 14.B 15.D

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Class 11 Mathematics | Trigonometric Functions

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. Convert 150° into radians.

A. $3\pi/5$ B. $\pi/6$ C. $5\pi/6$ D. $5\pi/3$

2. The degree measure of $7\pi/6$ radians is:

A. 240° B. 180° C. 150° D. 210°

3. An arc of length 6 cm subtends 2 radians. Its radius is:

A. 6 cm B. 4 cm C. 12 cm D. 3 cm

4. If $\sin \theta = 3/5$ and θ is acute, $\cos \theta$ equals:

A. $4/5$ B. $5/4$ C. $-4/5$ D. $3/4$

5. Which function is positive in the second quadrant?

A. $\sin \theta$ B. $\cot \theta$ C. $\cos \theta$ D. $\tan \theta$

6. $\sin(\pi + \theta)$ equals:

A. $-\sin \theta$ B. $\cos \theta$ C. $-\cos \theta$ D. $\sin \theta$

7. The exact value of $\cos 15^\circ$ is:

A. $(\sqrt{6}-\sqrt{2})/4$ B. $(\sqrt{6}+\sqrt{2})/4$ C. $\sqrt{3}/2$ D. $1/2$

8. $\tan 75^\circ$ equals:

A. $2+\sqrt{3}$ B. $1+\sqrt{3}$ C. $\sqrt{3}$ D. $2-\sqrt{3}$

9. If $\tan \theta = 1/2$, then $\sin 2\theta$ equals:

A. $3/5$ B. $1/5$ C. $4/5$ D. $5/4$

10. The fundamental period of $\sin(3x)$ is:

A. 2π B. $\pi/3$ C. 3π D. $2\pi/3$

11. $\cos 2\theta$ can be written as:

A. $1-2\sin^2\theta$ B. $2\sin^2\theta-1$
C. $1+2\sin^2\theta$ D. $\sin^2\theta-\cos^2\theta$

12. $\sin 20^\circ \cos 40^\circ + \cos 20^\circ \sin 40^\circ$ equals:

A. $\sqrt{3}/2$ B. 0 C. $\sqrt{3}$ D. $1/2$

13. The range of $2+3\sin x$ is:

A. $[-3,3]$ B. $[2,5]$ C. $[-1,5]$ D. $[-5,1]$

14. If $\sin x + \cos x = 1$, then $\sin 2x$ equals:

A. $1/2$ B. -1 C. 0 D. 1

15. The value of $\sin(-7\pi/6)$ is:

A. $1/2$ B. $-\sqrt{3}/2$ C. $\sqrt{3}/2$ D. $-1/2$

ANSWER KEY — check after completing all 15 questions

1.C 2.D 3.D 4.A 5.A 6.A 7.B 8.A 9.C 10.D 11.A 12.A 13.C 14.C 15.A

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Class 11 Mathematics | Complex Numbers And Quadratic Equations

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. The value of i^{27} is:

A. -1 B. 1 C. i D. -i

2. The conjugate of $3-4i$ is:

A. $4-3i$ B. $-3-4i$ C. $3+4i$ D. $-3+4i$

3. The modulus of $-5+12i$ is:

A. 13 B. 17 C. $\sqrt{17}$ D. 7

4. $(2+3i)+(4-5i)$ equals:

A. $-2-2i$ B. $-2+8i$ C. $6-2i$ D. $6+8i$

5. $(1+i)^2$ equals:

A. 2 B. $-2i$ C. $1+2i$ D. $2i$

6. The real part of $(2+i)(3-2i)$ is:

A. 8 B. -8 C. 4 D. 6

7. $1/i$ equals:

A. -1 B. -i C. i D. 1

8. $(3+4i)/(1+i)$ equals:

A. $3+4i$ B. $(-1+7i)/2$ C. $7+i$ D. $(7+i)/2$

9. If $x+iy=4-3i$, then $x+y$ equals:

A. 7 B. 1 C. -1 D. -7

10. The imaginary part of $(2-3i)^2$ is:

A. 5 B. -5 C. 12 D. -12

11. If $z=2-i$, then z times its conjugate is:

A. 3 B. -5 C. $4-i$ D. 5

12. Which complex number is purely imaginary?

A. $1+i$ B. 7 C. $-7i$ D. $7-i$

13. If $z+\text{conjugate}(z)=10$, the real part of z is:

A. 10 B. 5 C. 0 D. -5

14. The point representing $-2+3i$ lies in quadrant:

A. III B. II C. I D. IV

15. The modulus of $(1+i)/(1-i)$ is:

A. 1 B. 2 C. $\sqrt{2}$ D. 0

ANSWER KEY — check after completing all 15 questions

1.D 2.C 3.A 4.C 5.D 6.A 7.B 8.D 9.B 10.D 11.D 12.C 13.B 14.B 15.A

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Class 11 Mathematics | Linear Inequalities

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. Solve $3x-5<7$.

A. $x>4$ B. $x\leq 4$ C. $x<4$ D. $x<2$

2. Solve $-2x\geq 6$.

A. $x\leq 3$ B. $x\geq -3$ C. $x\geq 3$ D. $x\leq -3$

3. Solve $2\leq x+1<5$.

A. $3\leq x<6$ B. $1<x\leq 4$ C. $1\leq x<4$ D. $-1\leq x<6$

4. The integer solutions of $-2<x\leq 2$ are:

A. -1,0,1,2 B. 0,1,2
C. -2,-1,0,1,2 D. -2,-1,0,1

5. Solve $x/3+2\geq 5$.

A. $x\leq 9$ B. $x\geq 7$ C. $x\geq 9$ D. $x\geq 1$

6. Solve $5-2x>1$.

A. $x<2$ B. $x<3$ C. $x\leq 2$ D. $x>2$

7. Which value satisfies both $x>1$ and $x\leq 3$?

A. 4 B. 0 C. 1 D. 2

8. Solve $4x+1\leq 2x+9$.

A. $x<4$ B. $x\geq 4$ C. $x\leq 4$ D. $x\leq 5$

9. The solution of $x>5$ and $x<3$ is:

A. (3,5) B. $\emptyset$ C. R D. $(5,\infty)$

10. Solve $(x-1)/2>(x+2)/3$.

A. $x<7$ B. $x>1$ C. $x>7$ D. $x>-7$

11. A taxi charges ₹50 plus ₹12/km. For a bill at most ₹170, distance d satisfies:

A. $d\leq 12$ B. $0\leq d<12$ C. $0\leq d\leq 10$ D. $d\geq 10$

12. Solve $-3\leq 2x+1\leq 7$.

A. $-2<x<3$ B. $-4\leq x\leq 6$ C. $-2\leq x\leq 3$ D. $-1\leq x\leq 4$

13. The least integer satisfying $2x+3>12$ is:

A. 3 B. 5 C. 6 D. 4

14. If $7x-2<5x+8$, the greatest integer solution is:

A. 5 B. 3 C. 4 D. 6

15. A student needs an average of at least 75 in three tests. Scores are 70,80,x. Find x.

A. $x\leq 75$ B. $x\geq 75$ C. $x\geq 70$ D. $x>75$

ANSWER KEY — check after completing all 15 questions

1.C 2.D 3.C 4.A 5.C 6.A 7.D 8.C 9.B 10.C 11.C 12.C 13.B 14.C 15.B



Class 11 Mathematics | Permutations And Combinations

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. The value of $5!$ is:

A. 24 B. 25 C. 120 D. 60

2. How many two-digit numbers use digits 1,2,3,4 without repetition?

A. 8 B. 6 C. 16 D. 12

3. The number of arrangements of 5 distinct books is:

A. 60 B. 24 C. 25 D. 120

4. The value of $6P2$ is:

A. 30 B. 15 C. 36 D. 12

5. The value of $7C2$ is:

A. 21 B. 42 C. 49 D. 14

6. A committee of 3 is chosen from 8 people. Number of choices?

A. 112 B. 24 C. 56 D. 336

7. How many arrangements of the letters of LEVEL are possible?

A. 120 B. 20 C. 60 D. 30

8. How many 3-digit even numbers use 1,2,3,4 without repetition?

A. 24 B. 12 C. 8 D. 18

9. The value of $8C6$ is:

A. 28 B. 48 C. 16 D. 56

10. If $nP2=20$ and n is positive, n equals:

A. 4 B. 6 C. 10 D. 5

11. A team has 2 boys from 5 and 1 girl from 4. Number of teams?

A. 80 B. 20 C. 60 D. 40

12. How many diagonals does a hexagon have?

A. 12 B. 15 C. 6 D. 9

13. How many arrangements of 4 distinct books keep two specified books together?

A. 6 B. 24 C. 8 D. 12

14. How many 4-digit PINs use 0-9 if repetition is allowed?

A. 9000 B. 5040 C. 9999 D. 10000

15. In how many ways can a captain and vice-captain be selected from 6 players?

A. 30 B. 36 C. 15 D. 12

ANSWER KEY — check after completing all 15 questions

1.C 2.D 3.D 4.A 5.A 6.C 7.D 8.B 9.A 10.D 11.D 12.D 13.D 14.D 15.A

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Class 11 Mathematics | Binomial Theorem

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. The coefficient of x^2 in $(1+x)^5$ is:

A. 5 B. 15 C. 20 D. 10

2. The number of terms in $(a+b)^8$ is:

A. 16 B. 9 C. 8 D. 7

3. The coefficient of x^3 in $(2+x)^4$ is:

A. 4 B. 16 C. 32 D. 8

4. The constant term in $(x+1/x)^4$ is:

A. 4 B. 6 C. 8 D. 1

5. The coefficient of x^3 in $(1+x)^6$ is:

A. 20 B. 15 C. 6 D. 30

6. The sum of coefficients in $(2x+1)^4$ is:

A. 64 B. 81 C. 27 D. 16

7. The coefficient of x^2 in $(1-x)^5$ is:

A. 10 B. 5 C. -10 D. -5

8. The third term of $(a+b)^5$ is:

A. $10a^2b^3$ B. $5ab^4$ C. $10a^3b^2$ D. $5a^4b$

9. The coefficient of x^4 in $(1+2x)^5$ is:

A. 40 B. 80 C. 160 D. 16

10. The constant term in $(2+x)^3$ is:

A. 2 B. 1 C. 8 D. 6

11. The coefficient of x in $(3-x)^3$ is:

A. 27 B. 9 C. -27 D. -9

12. In $(1+x)^7$, coefficients of x^2 and x^5 are:

A. Opposite B. In ratio 2:5
C. In ratio 5:2 D. Equal

13. The coefficient of x^6 in $(x^2+1)^5$ is:

A. 20 B. 5 C. 10 D. 15

14. The last term of $(2x-3)^4$ is:

A. -81 B. 81 C. $16x^4$ D. -27

15. The sum of coefficients of odd powers in $(1+x)^6$ is:

A. 64 B. 32 C. 31 D. 16

ANSWER KEY — check after completing all 15 questions

1.D 2.B 3.D 4.B 5.A 6.B 7.A 8.C 9.B 10.C 11.C 12.D 13.C 14.B 15.B

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Class 11 Mathematics | Sequences And Series

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. The 6th term of the GP 3,6,12,... is:

A. 96 B. 192 C. 64 D. 48

2. The common ratio of 81,27,9,... is:

A. $\frac{1}{3}$ B. $-\frac{1}{3}$ C. -3 D. 3

3. The sum of the first 5 terms of 1,2,4,... is:

A. 16 B. 32 C. 30 D. 31

4. The geometric mean of 4 and 25 is:

A. 5 B. 20 C. 10 D. 14.5

5. For positive a,b, which is always true?

A. $AM < GM$ B. $AM \geq GM$ C. $GM = 0$ D. $AM = 2GM$

6. If $AM = GM$ for positive a,b, then:

A. $ab = 1$ B. $a = 2b$ C. $a = b$ D. $a + b = 1$

7. The sum to infinity of $6 + 3 + \frac{3}{2} + \dots$ is:

A. 18 B. 6 C. 12 D. 9

8. Which GP has a finite sum to infinity?

A. 2, -2, 2, ...

B. 3, 3, 3, ...

C. 5, -2.5, 1.25, ...

D. 1, 2, 4, ...

9. If a GP has $a = 2$ and $r = 3$, its 4th term is:

A. 81 B. 18 C. 24 D. 54

10. Three positive numbers 2,k,18 are in GP. Find k.

A. 9 B. 8 C. 10 D. 6

11. A population doubles yearly from 500. After 3 years it is:

A. 8000 B. 2000 C. 4000 D. 1500

12. The sum of the first 4 terms of 3,-6,12,... is:

A. 45 B. -9 C. 15 D. -15

13. If a GP has third term 12 and fourth term 24, its first term is:

A. 2 B. 6 C. 3 D. 4

14. For positive numbers with product 36, the least possible sum is:

A. 6 B. 36 C. 18 D. 12

15. Two positive geometric means inserted between 2 and 54 are:

A. 9, 18 B. 4, 27 C. 8, 16 D. 6, 18

ANSWER KEY — check after completing all 15 questions

1.A 2.A 3.D 4.C 5.B 6.C 7.C 8.C 9.D 10.D 11.C 12.D 13.C 14.D 15.D

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Class 11 Mathematics | Straight Lines

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. The slope of the line through (1,2) and (3,6) is:

A. 4 B. 2 C. $1/2$ D. -2

2. The slope of $3x+2y=6$ is:

A. $3/2$ B. $-3/2$ C. $-2/3$ D. $2/3$

3. The x-intercept of $2x+3y=12$ is:

A. 6 B. 12 C. 4 D. -6

4. The line of slope 3 through (1,2) is:

A. $y=3x+1$ B. $y=-3x+5$ C. $y=3x-1$ D. $y=2x+3$

5. A line perpendicular to $y=2x+1$ has slope:

A. 2 B. -2 C. $1/2$ D. $-1/2$

6. The angle between lines of slopes 0 and 1 is:

A. 45° B. 60° C. 30° D. 90°

7. The distance of (3,4) from $3x+4y-5=0$ is:

A. 20 B. 1 C. 5 D. 4

8. The distance between $x=2$ and $x=-3$ is:

A. 1 B. $\sqrt{5}$ C. -5 D. 5

9. Which point lies on $x/3+y/2=1$?

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

10. Lines $2x+3y=7$ and $4x+6y=1$ are:

A. Perpendicular B. Coincident
C. Parallel distinct D. Intersecting at origin

11. The equation of the y-axis is:

A. $x=1$ B. $y=0$ C. $x=y$ D. $x=0$

12. A line makes 120° with the positive x-axis. Its slope is:

A. $-1/\sqrt{3}$ B. $1/\sqrt{3}$ C. $\sqrt{3}$ D. $-\sqrt{3}$

13. The intersection of $x+y=5$ and $x-y=1$ is:

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

14. The line with intercepts 4 and 3 on the axes is:

A. $x+y=7$ B. $3x+4y=7$
C. $4x+3y=12$ D. $3x+4y=12$

15. For lines $y=mx+2$ and $3x-y+4=0$ to be parallel, m is:

A. $-1/3$ B. -3 C. 3 D. $1/3$

ANSWER KEY — check after completing all 15 questions

1.B 2.B 3.A 4.C 5.D 6.A 7.D 8.D 9.B 10.C 11.D 12.D 13.B 14.D 15.C

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Class 11 Mathematics | Conic Sections

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. The centre of $x^2+y^2-4x+6y-12=0$ is:

A. (4,-6) B. (-2,3) C. (-4,6) D. (2,-3)

2. The radius of $x^2+y^2=49$ is:

A. 7 B. 49 C. $\sqrt{7}$ D. 14

3. The focus of $y^2=12x$ is:

A. (-3,0) B. (0,3) C. (3,0) D. (12,0)

4. The directrix of $y^2=8x$ is:

A. $y=2$ B. $x=2$ C. $x=-2$ D. $y=-2$

5. The length of the latus rectum of $y^2=20x$ is:

A. 20 B. 10 C. 5 D. 40

6. The parabola $x^2=-16y$ opens:

A. Leftward B. Rightward
C. Upward D. Downward

7. For $x^2/25+y^2/9=1$, the major axis length is:

A. 5 B. 16 C. 10 D. 6

8. The eccentricity of $x^2/25+y^2/9=1$ is:

A. $3/5$ B. $5/4$ C. $4/5$ D. $2/5$

9. The foci of $x^2/16+y^2/25=1$ are:

A. (0, ± 5) B. (± 4 ,0) C. (0, ± 3) D. (± 3 ,0)

10. For $x^2/9-y^2/16=1$, the transverse axis length is:

A. 8 B. 3 C. 6 D. 10

11. The eccentricity of $x^2/9-y^2/16=1$ is:

A. $3/4$ B. $5/3$ C. $3/5$ D. $4/3$

12. Which equation represents a circle?

A. $y^2=16x$ B. $x^2/16+y^2/9=1$
C. $x^2+y^2=16$ D. $x^2-y^2=16$

13. The vertex of $y^2=-4x$ is:

A. (-1,0) B. (1,0) C. (0,0) D. (0,-1)

14. The circle centred at (1,-2) with radius 3 is:

A. $(x-1)^2+(y+2)^2=9$ B. $(x+1)^2+(y-2)^2=9$
C. $x^2+y^2=9$ D. $(x-1)^2+(y+2)^2=3$

15. The eccentricity of any parabola is:

A. 0 B. 1 C. Greater than 1 D. Between 0 and 1

ANSWER KEY — check after completing all 15 questions

1.D 2.A 3.C 4.C 5.A 6.D 7.C 8.C 9.C 10.C 11.B 12.C 13.C 14.A 15.B

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Class 11 Mathematics | Introduction To Three-Dimensional Geometry

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. The distance between (1,2,3) and (4,6,3) is:

A. $\sqrt{29}$ B. 7 C. 25 D. 5

2. The distance of (2,-3,6) from the origin is:

A. 11 B. 49 C. $\sqrt{41}$ D. 7

3. Which point lies on the xy-plane?

A. (3,0,-2) B. (0,3,-2) C. (3,-2,0) D. (1,1,1)

4. A point on the z-axis has coordinates:

A. (0,z,0) B. (z,0,0) C. (0,0,z) D. (z,z,0)

5. The distance of (3,4,5) from the xy-plane is:

A. 4 B. $\sqrt{41}$ C. 5 D. 3

6. The distance of (-2,3,4) from the yz-plane is:

A. 2 B. $\sqrt{29}$ C. 4 D. 3

7. The distance of (2,-5,7) from the xz-plane is:

A. 7 B. 5 C. 2 D. $\sqrt{74}$

8. The distance between (0,0,0) and (1,1,1) is:

A. $\sqrt{2}$ B. $\sqrt{3}$ C. 1 D. 3

9. For (a,2,3) to lie on the yz-plane, a must be:

A. 0 B. 3 C. 1 D. 2

10. Which point is in the first octant?

A. (2,3,-4) B. (2,-3,4) C. (-2,3,4) D. (2,3,4)

11. The distance between (-1,0,2) and (2,0,6) is:

A. 7 B. 4 C. 3 D. 5

12. If (x,0,0) is 4 units from the origin, x can be:

A. 0 only B. -4 only C. 4 only D. 4 or -4

13. The points (1,2,3) and (1,2,8) are separated by:

A. 5 B. 11 C. $\sqrt{5}$ D. 3

14. The squared distance between (2,1,-1) and (-1,3,1) is:

A. 13 B. 9 C. 7 D. 17

15. Which coordinate is zero for every point on the xz-plane?

A. All three B. y C. x D. z

ANSWER KEY — check after completing all 15 questions

1.D 2.D 3.C 4.C 5.C 6.A 7.B 8.B 9.A 10.D 11.D 12.D 13.A 14.D 15.B

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Class 11 Mathematics | Limits And Derivatives

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. The limit of $(x^2-4)/(x-2)$ as $x \rightarrow 2$ is:

A. 2 B. Does not exist C. 0 D. 4

2. The limit of $\sin x/x$ as $x \rightarrow 0$ (radians) is:

A. 0 B. ∞ C. -1 D. 1

3. The limit of $\sin(3x)/x$ as $x \rightarrow 0$ is:

A. 3 B. $1/3$ C. 1 D. 0

4. The derivative of x^4 is:

A. $x^5/5$ B. $4x^4$ C. $4x^3$ D. x^3

5. If $f(x)=3x^2-2x+5$, then $f'(1)$ is:

A. 6 B. 5 C. 3 D. 4

6. The derivative of $\sin x$ is:

A. $-\sin x$ B. $-\cos x$ C. $\tan x$ D. $\cos x$

7. The derivative of $\cos x$ is:

A. $-\sin x$ B. $\cos x$ C. $\sin x$ D. $-\cos x$

8. The derivative of a constant is:

A. 0 B. Undefined C. 1 D. The same constant

9. The limit of $(x^3-8)/(x-2)$ as $x \rightarrow 2$ is:

A. 12 B. 4 C. 8 D. 6

10. If $f(x)=x \sin x$, then $f'(x)$ is:

A. $\sin x + x \cos x$ B. $\cos x + x \sin x$
C. $x \cos x$ D. $\sin x - x \cos x$

11. The derivative of $1/x$ for $x \neq 0$ is:

A. $1/x^2$ B. $-1/x^2$ C. $-1/x$ D. $\ln x$

12. The limit of $(1-\cos x)/x$ as $x \rightarrow 0$ is:

A. -1 B. 1 C. $1/2$ D. 0

13. The derivative of $(x+1)/(x-1)$ is:

A. $2/(x-1)^2$ B. $1/(x-1)^2$ C. 1 D. $-2/(x-1)^2$

14. The derivative of x^2 at $x=-3$ is:

A. -6 B. -3 C. 9 D. 6

15. The limit of $(\sqrt{x+1}-1)/x$ as $x \rightarrow 0$ is:

A. 2 B. $1/2$ C. 0 D. 1

ANSWER KEY — check after completing all 15 questions

1.D 2.D 3.A 4.C 5.D 6.D 7.A 8.A 9.A 10.A 11.B 12.D 13.D 14.A 15.B

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Class 11 Mathematics | Statistics

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

- 1. The mean of 2,4,6,8 is:**
A. 6 B. 20 C. 4 D. 5
- 2. The range of 3,7,9,12 is:**
A. 31 B. 9 C. 12 D. 3
- 3. The variance of 2,2,2,2 is:**
A. 1 B. 0 C. 2 D. 4
- 4. The mean deviation about the mean for 1,3,5 is:**
A. 0 B. $\frac{4}{3}$ C. 2 D. $\frac{8}{3}$
- 5. The variance of 1,2,3 is:**
A. $\frac{2}{3}$ B. 2 C. 1 D. $\frac{1}{3}$
- 6. If variance is 16, standard deviation is:**
A. 4 B. 8 C. 256 D. 16
- 7. Adding 5 to every observation changes variance by:**
A. 25 B. 5 C. 10 D. 0
- 8. Multiplying every observation by 3 multiplies variance by:**
A. 3 B. 6 C. $\frac{1}{3}$ D. 9
- 9. If standard deviation is 2, that of observations multiplied by -4 is:**
A. 4 B. 16 C. 8 D. -8
- 10. For $x=1,2$ with frequencies 2,3, the mean is:**
A. $\frac{5}{2}$ B. $\frac{8}{5}$ C. $\frac{3}{2}$ D. $\frac{7}{5}$
- 11. The variance of 4,6 is:**
A. 4 B. 1 C. 2 D. 0
- 12. If mean=5 and mean of squares=29, variance equals:**
A. 4 B. 24 C. 54 D. 25
- 13. The sum of deviations from the arithmetic mean is always:**
A. 1 B. 0 C. The sample size D. The mean
- 14. Data A has SD 2, data B has SD 5 in the same units. Which is more dispersed?**
A. Both equally B. B
C. Cannot compare SDs D. A
- 15. The mean deviation about the median of 1,2,9 is:**
A. 0 B. $\frac{7}{3}$ C. 3 D. $\frac{8}{3}$

ANSWER KEY — check after completing all 15 questions

1.D 2.B 3.B 4.B 5.A 6.A 7.D 8.D 9.C 10.B 11.B 12.A 13.B 14.B 15.D

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Class 11 Mathematics | Probability

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. A fair die is rolled. Probability of an even number is:

A. $\frac{2}{3}$ B. $\frac{1}{6}$ C. $\frac{1}{3}$ D. $\frac{1}{2}$

2. Two fair coins are tossed. Probability of exactly one head is:

A. $\frac{1}{4}$ B. $\frac{1}{2}$ C. 1 D. $\frac{3}{4}$

3. The probability of an impossible event is:

A. 0 B. -1 C. 1 D. $\frac{1}{2}$

4. If $P(A)=0.35$, then $P(A')$ is:

A. 1.35 B. 0.35 C. -0.35 D. 0.65

5. One card is drawn from a standard 52-card deck. Probability of an ace?

A. $\frac{1}{52}$ B. $\frac{1}{4}$ C. $\frac{4}{13}$ D. $\frac{1}{13}$

6. A fair die is rolled. Probability of a prime number is:

A. $\frac{1}{3}$ B. $\frac{1}{2}$ C. $\frac{2}{3}$ D. $\frac{1}{6}$

7. Two fair dice are rolled. Probability of sum 7 is:

A. $\frac{7}{36}$ B. $\frac{5}{36}$ C. $\frac{1}{6}$ D. $\frac{1}{12}$

8. If A,B are mutually exclusive with probabilities 0.2 and 0.3, $P(A \cup B)$ is:

A. 0.06 B. 0.5 C. 0.1 D. 0.8

9. If $P(A)=0.6$, $P(B)=0.5$ and $P(A \cap B)=0.2$, $P(A \cup B)$ is:

A. 0.7 B. 1.1 C. 0.3 D. 0.9

10. A bag has 3 red and 5 blue balls. Probability of drawing red is:

A. $\frac{3}{8}$ B. $\frac{5}{8}$ C. $\frac{3}{5}$ D. $\frac{1}{3}$

11. Three fair coins are tossed. Probability of no heads is:

A. $\frac{3}{8}$ B. $\frac{1}{4}$ C. $\frac{7}{8}$ D. $\frac{1}{8}$

12. For every event A, its probability lies in:

A. $[-1,1]$ B. $[1,\infty)$ C. $(0,1)$ D. $[0,1]$

13. From integers 1 to 10, one is chosen uniformly. Probability it is divisible by 3?

A. $\frac{1}{5}$ B. $\frac{2}{5}$ C. $\frac{3}{10}$ D. $\frac{1}{3}$

14. Two fair dice are rolled. Probability of a double is:

A. $\frac{1}{3}$ B. $\frac{1}{6}$ C. $\frac{1}{36}$ D. $\frac{1}{12}$

15. If $P(A \cup B)=0.8$, $P(A)=0.5$ and $P(B)=0.4$, $P(A \cap B)$ is:

A. 0.2 B. 0.1 C. 0.9 D. 0.3

ANSWER KEY — check after completing all 15 questions

1.D 2.B 3.A 4.D 5.D 6.B 7.C 8.B 9.D 10.A 11.D 12.D 13.C 14.B 15.B

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