Important PSTET Maths Question and Answers with Solution

Q1. Ten crore twenty thousand two hundred three is written in figures as
(a) 100002203
(b) 1020203
(c) 1002203
(d) 100020203

Q2. Which of the following fractions is less than $\frac{4}{5}$ and greater than $\frac{1}{2}$?
(a) 8/9
(b) 7/9
(c) 1/3
(d) 2/5

Q3. What will be the value of K in the six digit number 56234K, if the number is divisible by 6 ?
(a) 0
(b) 1
(c) 4
(d) 6

Q4. In a class of 28 students, 15 are girls. If 21 students clean their teeth daily and 3/5 of the girls clean their teeth daily, then state which fraction of boys are doing the same work daily.
(a) 2/5
(b) 4/7
(c) 4/9
(d) 12/13

Q5. The average of five consecutive natural number is 15. What is the sum of the first and last numbers
(a) 27
(b) 30
(c) 31
(d) 33

Q6. A shopkeeper bought 138 boxes of apples each containing 24 apples. He could sell only 117 ¾ boxes of apples on the first day. How many apples are left with him ?
(a) 486
(b) 498
(c) 510
(d) 522

Q7. Two angles having their sum 180° are always known as
(a) Adjacent angles
(b) Complementary angles
(c) Supplementary angles
(d) Linear pair

Q8. Which of the following statements is nof true ?
(a) Sum of an acute angle and a right angle is always an obtuse angle.
(b) Sum of two acute angles is always less than a right angle.
(c) Sum of two right angles is equal to a straight angle.
(d) Sum of two obtuse angles is always a reflex angle.

Q9. Which one of the following groups of letters have only one line of symmetry ?
(a) B, I, H
(b) C, G, U
(c) D, E, M
(d) N, A, B

Q10. Yogesh runs with a speed of 30 km/h and completes a race in 5 minutes. What is the length of the race (in m) ?
(a) 2050
(b) 2500
(c) 2550
(d) 2600

Q11. Train P leaves station A at 6:40 o'clock and reaches station B at 21:30 o'clock on the same day. Train Q leaves station A at 19:10 o'clock and reaches station B at 10:50 o'clock the next day. Which train takes more time and how much more time (in minutes) ?
(a) P, 30
(b) P, 40
(c) Q, 50
(d) Q, 70

Q12. Ankit runs on a circular track of length 400 ता. He makes 3 rounds daily on it. How much distance {in km) does he cover on the track in a week ?
(a) 7.2
(b) 8.4
(c) 8.8
(d) 9.4

Q13. What comes next in the folllowing pattern ?
1 A 1, 4 B 8, 9 C 27, 16 D 64, _____
(a) 25 D 125
(b) 25 E 100
(c) 25 E 125
(d) 36 E 100

Q14. 540 students of a school voted for the best group song presented in a competition. Then, on the basis of the obtained votes, these group songs A, B, C and D were represented on a pie chart by angles of 120°, 80°, 70° 90° respectively at the centre. How many students voted for group song B ? (Assume that one student has voted only for one group song.)
(a) 100
(b) 120
(c) 140
(d) 150

Q15. The following table shows the marks in English and Mathemathics obtained by four friends :

	English	Mathematics
Yogesh	72	64
Joseph	75	68
Vinita	69	79
Devika	73	76

Which of the options given below is correct ?
(a) Joseph obtained maximum marks in English but minimum marks in Mathematics.
(b) Devika got maximum marks in English and Mathematics combined.
(c) Vinita obtained maximum marks in English as well as in Mathematics.
(d) Yogesh obtained least marks in English as well as in Mathematics.

Q16. If 60% of 400 +k% of 280 = 296, then the value of k is :
(a) 68/7
(b) 20
(c) 28
(d) 33

Q17. On subtracting (12a—9ab—2) from the sum of (4a —7ab—4b—5) and (a +3) (b—4), we get:
(a) 12a-3ab - b-15
(b) -12a+3ab-15
(c) - 12a+3ab –b -15
(d) - 12a -15ab - b-19

Q18. If 4 pipes of same type can fill a tank in 2 hours 15 minutes, then how much time will 5 pipes of same type take to fill the tank ?
(a) 1 hours 30 minutes
(b) 1 hours 48 minutes
(c) 1 hours 55 minutes
(d) 2 hours 5 minutes

Q19. In a class, ratio of number of boys to that of girls is 2 : 3. When three boys leave the class and 3 new girls join the class, the ratio becomes 3 : 7. How many girls were there in the class initially ?
(a) 6
(b) 10
(c) 12
(d) 18

Q20. Which of the following statements is true ?
(a) A number is irrational if it can be expressed in the form p/q, where p and q are integers, q≠0
(b) Sum of any two irrational numbers is sometimes a rational number and sometimes an irrational number
(c) Product of any two irrational numbers is always an irrational number
(d) The square of an irrational number is always a rational number

Q21. How many triangles can be drawn having its angles as 30°, 40° and 110° ?
(a) One (b) Two
(c) Infinitely many (d) Zero

Q22. In ΔABC and ΔPQR, AB=3.1 cm, AC=4.5 cm, PR=3.1 cm, QR=4.5 cm, ∠PRQ=60° and ∠BAC=60". Which one of the following is true ?
(a) ΔABC≅ΔPQR
(b) ΔABC≅ΔRPQ
(c) ΔABC≅ΔPRQ
(d) ΔABC≅ΔRQP

Q23. In ΔABC, side BC is produced to point D and side CA is produced to point E. If ∠BAE = 115° and ∠ACD=104°, then which of the two angles ∠ABC and ∠BAC is larger and by how much ?

(a) ∠ABC, 39°
(b) ∠ABC, 13°
(c) ∠BAC, 26°
(d) ∠BAC, 65°

Q24. The sides of a triangle are 3 cm, 4 cm and (x +1) cm, where x is an integer. Then, x can take the value/values :
(a) From 0 cm to 6 cm
(b) From 1 cm to 6 cm
(c) From 1 cm to 5 cm
(d) Only 4 cm

Q25. Angles of a quadrilateral are in the ratio 3: 5:4: 6. Then, sum of the smallest and greatest angles of the quadrilateral is :
(a) 180°
(b) 170°
(c) 140°
(d) 160°

Q26. The length of a hall is 60 m, breadth is 32 m and height is 8 m. Area of one of its longer wall (in m^2) is :
(a) 240
(b) 256
(c) 480
(d) 1920

Q27. The volume $(\text{in } cm^3)$ of a cylinder, whose base diameter is 8 cm and height is 7/8 of the base radius, is: $(\text{use } \pi = \frac{22}{7})$
(a) 154
(b) 176
(c) 704
(d) 1408

Q28. The cost of painting a cube on all the faces at the rate of 3/- per cm^2 is 1,152/-. What is the length of its edge (in cm) ?
(a) 4
(b) 6
(c) 8
(d) 14

Q29. The median of numbers 10, 8, 2, 7, 3, 8, 5, 1 is k. If 10 is replaced by 1, then new median is r. The value of (k - r) is:
(a) –1.5 (b) 0
(c) 1 (d) 2

Q30. An integer is chosen from integers 1 to 100 at random. What is the probability that if is not divisible by 7?
(a) 17/20 (b) 22/25
(c) 7/50 (d) 43/50

Solutions

S1. Ans.(d)
Sol. Ten crore twenty thousand two hundred three is written in figures as 10,00,20,203

S2. Ans.(b)
Sol. The fraction 4/5 is equal to 0.8 and 1/2 is equal to 0.5. Therefore, we need to find a fraction between 0.5 and 0.8.
Option (a), 8/9, is approximately 0.89, which is greater than 0.8.
Option (b), 7/9, is approximately 0.78, which is between 0.5 and 0.8.
Option (c), 1/3, is approximately 0.33, which is less than 0.5.
Option (d), 2/5, is approximately 0.4, which is less than 0.5.
Therefore, the fraction 7/9 is less than 4/5 and greater than 1/2.

S3. Ans.(c)
Sol. A number is divisible by 6 if it is divisible by both 2 and 3.
A number is divisible by 2 if the last digit is even. The last digit of 56234K is K, so K must be even.
A number is divisible by 3 if the sum of its digits is divisible by 3. The sum of the digits of 56234K is 5+6+2+3+4+K=20+K. For 20+K to be divisible by 3, K must be 1 or 4.

Since K must be even, K must be equal to 4.

S4. Ans.(d)
Sol. Given:
Total number of students = 28
Number of girls = 15
Number of boys = 28 - 15 = 13
Number of girls who clean their teeth daily = (3/5) x 15 = 9
Number of students who clean their teeth daily = 21
To find the fraction of boys who clean their teeth daily, we can subtract the number of girls who clean their teeth daily from the total number of students who clean their teeth daily and then divide this number by the total number of boys.

Fraction of boys who clean their teeth daily = $\frac{21\ students - 9\ students}{13\ students} = \frac{12}{13}$

Therefore, $\frac{12}{13}$ of the boys clean their teeth daily.

S5. Ans.(b)
Sol. Let 5 consecutive natural number is x, x+1, x+2, x+3, x+4
So, x + x+1 + x+2 + x+3 + x+4 = 75
Or, 5x + 10 = 75
Or, 5x = 65
Or, x = 13
Hence, the numbers are:
13, 14, 15, 16 and 17
Now, sum of first and last number = 13 + 17 = 30

S6. Ans.(a)
Sol. The shopkeeper bought a total of 138 boxes x 24 apples/box = 3312 apples.
On the first day, he sold 471/4 boxes x 24 apples/box = 2826 apples.
Therefore, he is left with 3312 apples - 2826 apples = 486 apples.

S7. Ans.(c)
Sol. The answer is (c) Supplementary angles.
Two angles that have a sum of 180 degrees are called supplementary angles. Adjacent angles and linear pairs are different types of angle pairs with different properties.

S8. Ans.(b)
Sol. The answer is (b) Sum of two acute angles is always less than a right angle.
An acute angle is an angle that measures less than 90 degrees. The sum of two acute angles cannot be equal to or greater than 90 degrees, as this would result in an obtuse angle or a right angle.
Therefore, the statement "Sum of two acute angles is always less than a right angle" is always true.

S9. Ans.(c)
Sol. Among the given options only option (c) is correct answer. D, E, M have only one line of symmetry.

S10. Ans.(b)
Sol.

$$\text{Required distance} = 30 \times \frac{5}{18} \times 300 = 2500\ m$$

S11. Ans.(c)
Sol. tame taken by train P to reach station B = 21:30 – 6:40 = 14 hours 50 minutes
tame taken by train Q to reach station B = 10:50 – 19:10 = 15 hours 40 minutes
So Q has taken 50 minutes more.

S12. And.(b)
Sol. length of track = 400 m
He covers daily = 3 × 400 = 1200 m
He covers in a week = 7 × 1200 = 8400 m = 8.4 km

S13. Ans.(c)
Sol. its multiplying numbers by 1, then 2, then 3, then 4, then 5 and alphabets are in + 1 order.

S14. And.(b)
Sol. number of students voted for B = $\frac{80°}{360°} \times 540 = 120$

S15. Ans.(b)
Sol. Devika got maximum marks in English and Mathematics combined.

S16. Ans.(b)
Sol.

$$\frac{60}{100} \times 400 + \frac{k}{100} \times 280 = 296$$
$$\Rightarrow 240 + \frac{14k}{5} = 296$$
$$\Rightarrow \frac{14k}{5} = 56$$
$$\Rightarrow k = 20$$

S17. Ans.(c)
Sol. sum of (4a —7ab—4b—5) and (a +3) (b—4)
= 4a —7ab—4b—5 + ab – 4a + 3b – 12 = - 6ab – b – 17
Now, - 6ab – b – 17 – (12a—9ab—2) = - 12a + 3ab -b - 15

S18. Ans.(b)

Sol. 4 pipes of same type can fill a tank = 2 hours 15 minutes

1 pipes of same type can fill a tank = 2 hours 15 minutes × 4 = 9 hours

5 pipes of same type can fill a tank = 9/5 hours = 1 hour 48 minutes

S19. Ans.(d)

Sol. Let the number of boys in the class = 2x

Let the number of girls in the class = 3x

When three boys leave the class and three new girls the class the new ratio will be

$$\frac{2x-3}{3x+3}=\frac{3}{7} \Rightarrow 7(2x-3)=3(3x+3)$$

$\Rightarrow 14x - 21 = 9x + 9$

$\Rightarrow 5x = 30$

$\Rightarrow x = 6$

Girls in the class initially = 6× 3 = 18

S20. Ans.(b)

Sol. Among the given option only option (b) which is, Sum of any two irrational numbers is sometimes a rational number and sometimes an irrational number is the correct answer.

S21. Ans.(c)

Sol. Sum of given angles = 30°+ 40° +110° = 180°

Sum of angles of a triangle = 180°

Hence, infinitely triangles can be drawn.

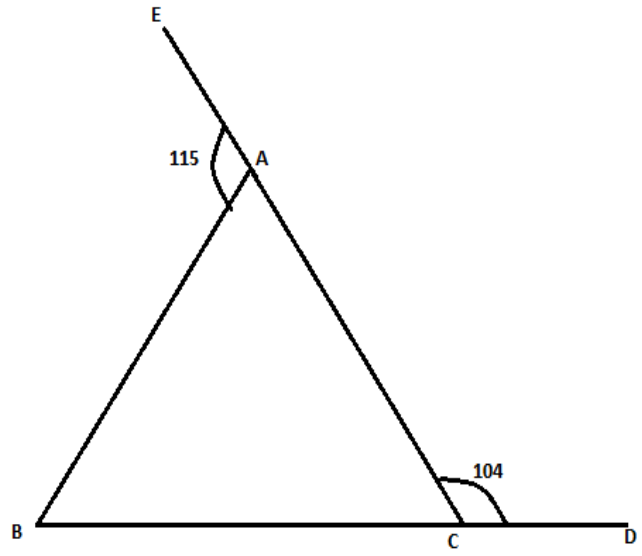
S22. Ans.(b)

Sol. Since given that ∠ BAC = ∠ PRQ = 60° and AC = QR = 4.5 cm

Now, if we compare the remaining sides AB = 3.1 cm and PR = 3.1 cm, then we can conclude that ΔABC ≡ ΔPQR by SAS (Side-Angle-Side) postulate.

S23. Ans.(c)

Sol.



∠BAC = 180° -115° = 65°

∠ACB=180° - 104° = 76°

∠ABC = 180° - (65° + 76°) = 39°

∠BAC - ∠ABC = 65° - 39° = 26°

S24. Ans.(c)

Sol. The sides of a triangle must satisfy the Triangle Inequality, which states that the sum of any two sides of a triangle must be greater than the third side.

In this case, we have: 3 + 4 > x + 1

7 > x + 1

x < 6

S25. Ans.(a)

Sol. Let the angles of a quadrilateral = 3x, 5x, 4x, 6x

We know that 3x + 5x + 4x + 6x = 360°

X = 20

Smallest angle 3x = 60°

Largest angle 6x = 120°

Sum = 60 + 120 = 180°

S26. Ans.(c)

Sol. Area of longer wall = 60 × 8 = 480

S27. Ans.(b)

Sol. Diameter = 8 cm

Radius = 4 cm

$$\text{Height} = \frac{7}{8} \times 4 = \frac{7}{2}$$

$$\text{Volume} = \pi r^2 h = \frac{22}{7} \times 4 \times 4 \times \frac{7}{2} = 176$$

S28. Ans.(c)

Sol.

Surface area of cube = $6a^2$

ATQ,

$3 \times 6a^2 = 1152$

$6a^2 = 64$

a = 8

S29. Ans.(d)

Sol. First we arrange the numbers in increasing order

1, 2, 3, 5, 7, 8, 8, 10

Median k = $\frac{5+7}{2} = 6$

If 10 is replaced by 1 then,

1, 1, 2, 3, 5, 7, 8, 8

Median r = $\frac{3+5}{2} = 4$

K – r = 6 – 4 = 2

S30. Ans.(d)

Sol. Integers divisible by 7 are 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91, 98

So, integers between 1 to 100 not divisible by 7 are 100 – 14 = 86

Probability = $\frac{86}{100} = \frac{43}{50}$