

Number of Items: 40

Time Allowed: 1 Hour

1. On the number line, which one of the following rational numbers is located half way between -4 and -3 ?

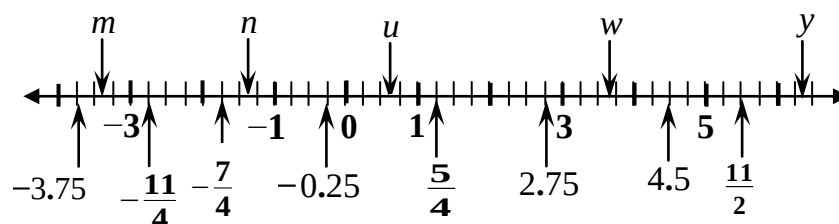
A. $-\frac{9}{2}$

C. $-\frac{5}{2}$

B. $-\frac{7}{2}$

D. $-\frac{3}{2}$

2. The diagram given below shows the position of some points on the number line and the corresponding rational numbers.



By using this number line, which of the following is the correct order of numbers?

A. $2.75 < w < \frac{11}{2} < 4.5 < 5$

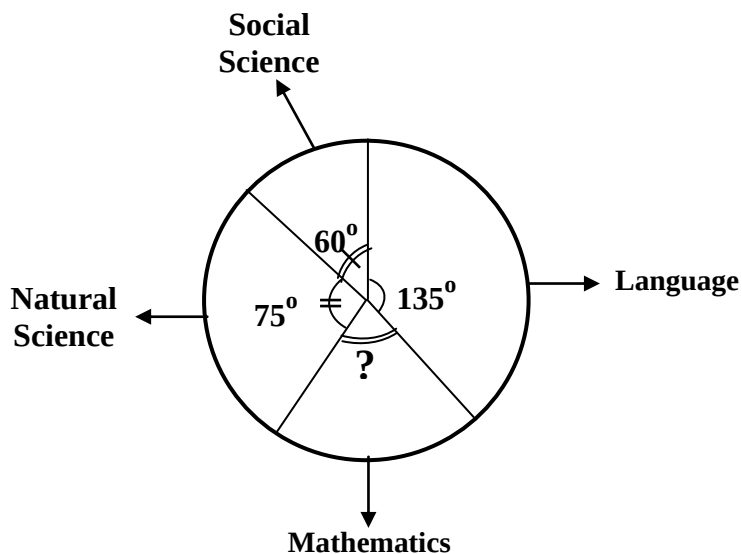
B. $u < 1 < \frac{11}{2} < 4.5 < y$

C. $n < -\frac{7}{4} < -0.25 < -1 < u < 2.75$

D. $-3.75 < m < -\frac{7}{4} < \frac{5}{4} < w < 5 < \frac{11}{2}$

3. $\frac{10}{7} + \frac{6}{11} \times \left(\frac{3}{14} + \frac{3}{8} \right)$ is equal to _____ .
- A. $\frac{4}{7}$ C. $\frac{7}{12}$
B. $\frac{9}{28}$ D. $\frac{7}{4}$
4. When $x \in \mathbb{Q}$, what is the solution of $\frac{3x-2}{2} = x - \frac{1}{2}$?
- A. 2 C. 1
B. $-\frac{3}{2}$ D. -1
5. What is the solution set of $8(x-2) \leq 4x-8$ in the set of whole numbers?
- A. $\{1, 2\}$ C. $\{2, 3, 4 \dots\}$
B. $\{0, 1, 2\}$ D. $\{\dots, -2, -1, 0, 1, 2\}$
6. What is the value of **a** in the proportion $1:5 = \mathbf{a}:15$?
- A. 3 C. 9
B. 5 D. 15

- 14 The following pie chart shows the number of teachers in a certain school within four departments; Language, Mathematics, Natural Science and Social Science.



If the total number of teachers is 48, then how many mathematics teachers are there?

- A. 12 C. 16
- B. 14 D. 18
15. Which one of the following statements is **NOT** true about the properties of a trapezium?
- A. Only one pair of its opposite sides are parallel.
- B. The parallel sides are called bases of the trapezium.
- C. The distance between the bases is the altitude of the trapezium.
- D. All angles of a trapezium are right angle.

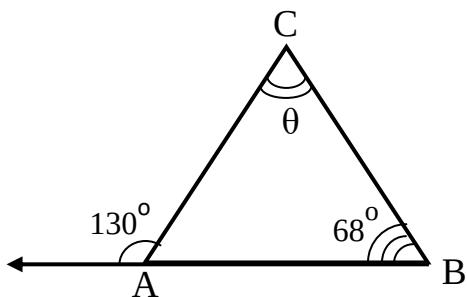
16. Which one of the following statements is **true** about the properties of a rhombus?

- A. Only one pair of its sides are congruent.
- B. All angles of a rhombus are congruent.
- C. All sides of a rhombus are equal in length.
- D. Diagonals of a rhombus are congruent.

17. If the measures of the three angles of a triangle are $\frac{1}{3}\beta$, $\frac{2}{3}\beta$ and 2β , then what is the measure of the smallest angle of this triangle?

- A. 60°
- B. 40°
- C. 20°
- D. 10°

18. For $\triangle ABC$ shown below, two of its interior angles measure 68° and θ .



If the exterior angle at vertex A measures 130° , then what is the value of θ ?

- A. 50°
- B. 62°
- C. 68°
- D. 72°

19. The height of a rectangle is equal to half of its base. If the base of the rectangle is 8 cm, then what is the area of the rectangle?

- A. 32 cm^2 C. 48 cm^2
 B. 36 cm^2 D. 64 cm^2

20. The ratio of the area of a circle to its circumference is 4:1. What is the length of the radius of this circle?

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

21. The volume of a right circular cylinder is $112\pi \text{ cm}^3$. If the radius of its base is 4 cm, then what is the length of its altitude ?

- A. 3 cm C. 6 cm
 B. 5 cm D. 7 cm

22. What is the value of $\sqrt{76.74}$?

(Use the table given below)

The Function $y = x^2$							$8.50 \leq x \leq 8.99$			
x	0	1	2	3	4	5	6	7	8	9
8.5	72.25	72.42	72.59	72.76	72.93	73.10	73.27	73.44	73.62	73.79
8.6	73.96	74.13	74.30	74.48	74.65	74.82	75.00	75.17	75.34	75.52
8.7	75.69	75.86	76.04	76.21	76.39	76.56	76.74	76.91	76.09	77.26
8.8	77.44	77.62	77.79	77.97	78.15	78.32	78.50	78.68	78.85	79.03
8.9	79.21	79.39	79.57	79.74	79.92	80.10	80.28	80.46	80.46	80.82

- A. 8.75 C. 8.77
 B. 8.76 D. 8.78

23. Which one of the following is the product of $(-5a)$ and $(4a - 3ab)$?

- A. $15a^2b - 20a^2$ C. $20a^2 - 15a^2b$
 B. $20a^2 + 15a^2b$ D. $-15a^2b - 20a^2$
24. What is the common factor of $(6mn^3 - 9m^2n^2)$ and $(10m^2n^2 - 15m^3n)$?
- A. $2n + 3m$ C. $2n - 3m$
 B. $3n + 2m$ D. $3n - 2m$
25. Which one of the following is the solution of $\frac{x+3}{3} - \frac{x-1}{2} = 3$, for $x \in \mathbb{Q}$?
- A. -9 C. $\frac{9}{5}$
 B. $-\frac{9}{5}$ D. 9
26. What is the solution set of $-\frac{2}{3}x - 3 > x - \frac{1}{2}$, for $x \in \mathbb{Z}$?
- A. $\{\dots, -3, -2, -1\}$ C. $\{-1, 0, 1, 2, 3, \dots\}$
 B. $\{\dots, -4, -3, -2, \}$ D. $\{-2, -1, 0, 1, 2, \dots\}$
27. Subset of the sample space of an experiment is called _____.
- A. an outcome C. probability
 B. an event D. observation
28. As shown on the table below corresponding values of x and y are given.

x	-2	-1	0	1	2
y	2	1	0	-1	-2

Which one of the following equations relates x and y ?

A. $x - y = 0$

C. $x + y = 0$

B. $2x - y = 1$

D. $x + 2y = 2$

29. What is the equation of a line whose slope is $-\frac{1}{3}$ and passes through the point $(-1, -1)$?

A. $3x + y + 4 = 0$

C. $x + 3y + 4 = 0$

B. $3x - y + 4 = 0$

D. $x - 3y + 4 = 0$

30. Which of the following is **true** about the similarity of geometric figures?

A. All equilateral triangles are similar.

B. Any pair of quadrilaterals are similar

C. Any two triangles are similar.

D. Any pair of pentagons are similar to each other.

31. If the ratio of the sides of two similar triangles is 2:5, then the area of the smaller triangle will be ____ of the area of the larger triangle.

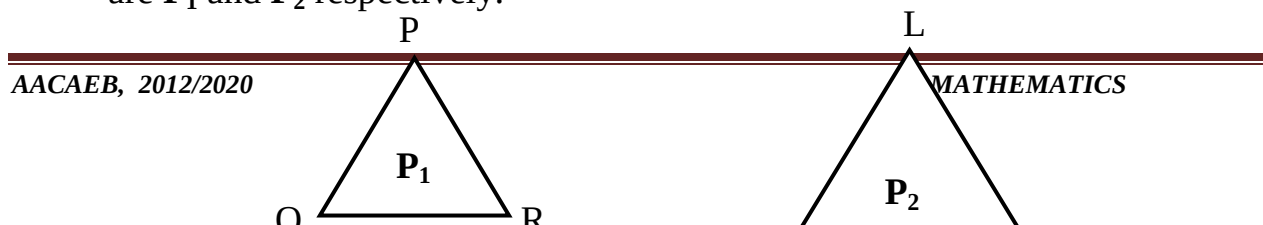
A. $\frac{4}{25}$

C. $\frac{5}{2}$

B. $\frac{2}{5}$

D. $\frac{25}{4}$

32. For ΔPQR and ΔLMN shown below, $\Delta PQR \sim \Delta LMN$ where their perimeters are P_1 and P_2 respectively.



Which one of the following is **true** about these triangles?

- A. $\left(\frac{LM}{PQ}\right)^2 = \frac{P_2}{P_1}$
- B. $\frac{PQ}{LM} = \frac{P_2}{P_1}$
- C. $\frac{LM}{PQ} = \left(\frac{P_2}{P_1}\right)^2$
- D. $\frac{LM}{PQ} = \frac{P_2}{P_1}$

33. In a circle the region bounded by two radii and an intercepted arc of the circle is called _____ of the circle.

- A. segment
- B. sector
- C. secant
- D. tangent

34. Which one of the following is **true** about an inscribed angle? It is an angle whose vertex is _____ and its sides are chords of the circle.

- A. the center of the circle
- B. out side the circle
- C. on the circle
- D. inside the circle

35. If two dice are rolled, then what is the probability that the sum of the numbers on the upper faces is less than 8?

Which one of the following is **NOT** lateral edge of the pyramid?

A. $\overline{VA}$

C. $\overline{VB}$

B. $\overline{AB}$

D. $\overline{VC}$

THE END