ይህ መገልገያ (መፅሐፍ) የተጫነው
በ ኢትዮ_ Students የ ቴሌግራም ቻናል ላይ ነው



ከ10,000 በላይ ተማሪዎች ወቅታዊ መፅሀፍት እና ተማሪዎችን የሚረዱ ጥቅም አላቸው ፅሁፎችን ያገኛሉ

በቴሌግራም በርካታ ተከታዮች ያሉት ይፋዊ ቻናል

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1 ADDIS ABABA CITY ADMINISTRATION EDUCATION BUREAU 1
GRADE EIGHT MODEL EXAM
MATHEMATICS EXAMINATION
2012/ 2020

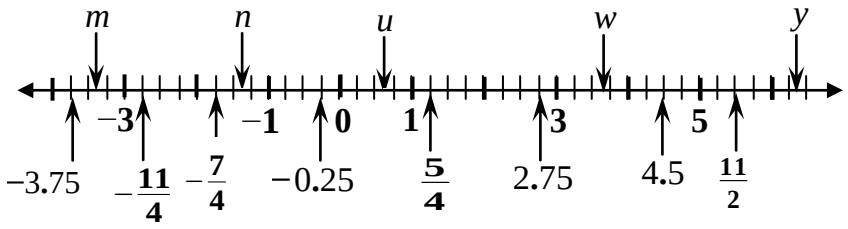
Number of Items: 40 **Time Allowed: 1 Hour**

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 …}

B. {0, 1, 2} D. {…, −2, −1, 0, 1, 2}

6. What is the value of **a** in the proportion 1**:**5 = **a:**15?

A. 3 C. 9

B. 5 D. 15

7. By selling a pair of shoes for Birr 168 a shopkeeper made a profit of 12%. Initially, how much the shoes cost him?

A. Birr 158
C. Birr 154
B. Birr 156
D. Birr 150

8. What is the rate of simple interest per annum at which Birr 1,000 earn Birr 750 in 5 years?

A. 5%
C. 10%
B. 7%
D. 15%

9. What is the value of x in a population function whose values are:

1, 2, 4, x, 8, 9 so that the median will be 5?

A. 5
C. 7
B. 6
D. 7.5

10. What is the value of $\left(3\sqrt{7}\times\sqrt{6}\right)^2$?

A. 63
C. 252
B. 126
D. 378

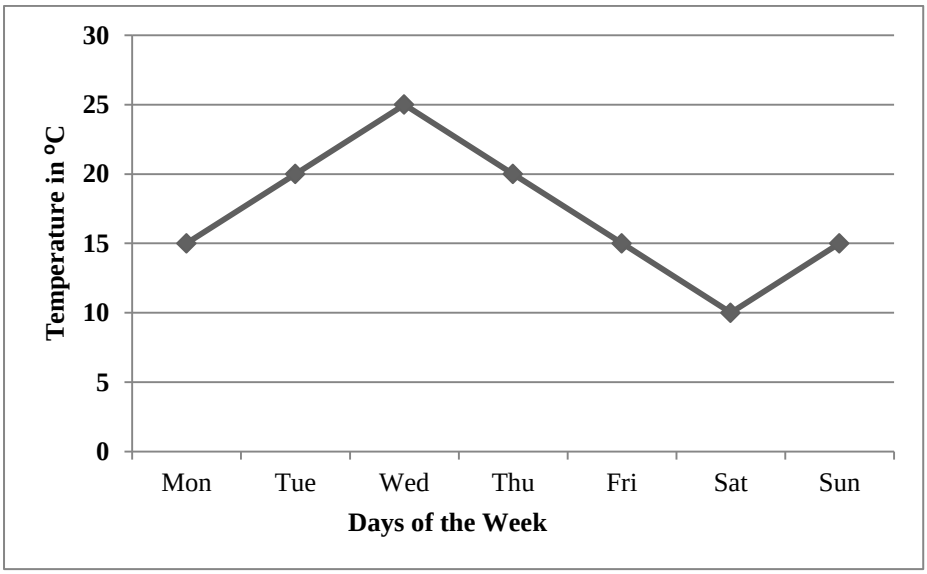
11. Which one of the following is true about $\sqrt[3]{125}=5$?

A. 5 is the index.
C. 3 is the radicand.
B. 125 is the radicand.
D. 125 is the index.

12. When the sum of an integer and 6 is multiplied by 7 the result is 63. What is the integer?

A. −3
C. 3
B. −2
D. 9

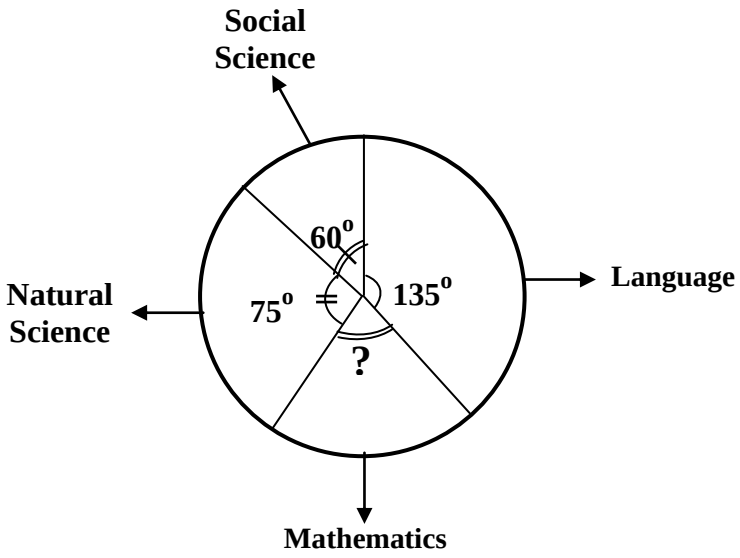
13. The following line graph shows the daily temperature recorded for one week in a certain town at midday.



Which one of the following is **true** about this graph?

A. The lowest temperature was recorded on Wednesday.
B. The temperature of the town was increasing within the last three days.
C. The temperature of the town was increasing within the first three days.
D. The highest temperature was recorded on Friday.

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
B. 14
C. 16
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.

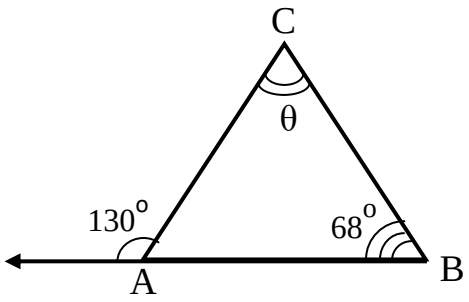
D. Diagonals of a rhombus are congruent.

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^o C. 20^o

B. 40^o D. 10^o

18. For ΔABC shown below, two of its interior angles measure 68^o and θ.



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

A. 50^o C. 68^o

B. 62^o D. 72^o

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 $112\pi\ cm^3$. 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 $y = x^2$									$8.50 \le x \le 8.99$	
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. $\{\ldots, -3, -2, -1\}$ C. $\{-1, 0, 1, 2, 3, ...\}$

B. $\{\ldots, -4, -3, -2,\}$ D. $\{-2, -1, 0, 1, 2, \ldots\}$

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, ΔPQR∼ΔLMN where their perimeters are $\mathbf{P_1}$ and $\mathbf{P_2}$ respectively.



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

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

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

B. $\frac{PQ}{LM} = \frac{P_2}{P_1}$

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
C. secant
B. sector
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
C. on the circle
B. out side 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?

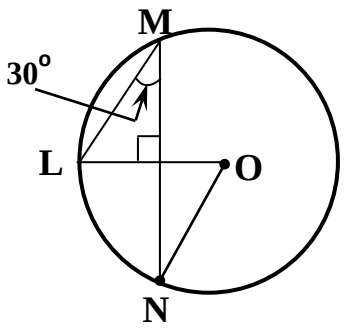
A. $\frac{5}{18}$

C. $\frac{7}{12}$

B. $\frac{5}{12}$

D. $\frac{5}{6}$

36. In the figure below O is the center of the circle with $\overline{MN} \perp \overline{OL}$ and m($\angle$LMN) = 30^o.



What is the measure of $\angle$MNO?

A. 20^o

C. 40^o

B. 30^o

D. 60^o

37. Let ΔPQR be a right angled triangle with its hypotenuse PQ = 13cm and one leg PR = 12cm. What is the length of the other leg $\overline{QR}$?

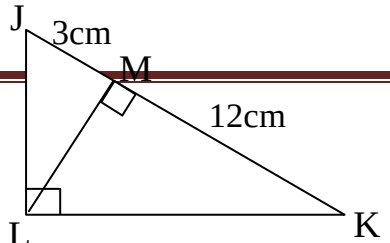
A. 2cm

C. $2\sqrt{5}$ cm

B. $\sqrt{5}$ cm

D. 5cm

38. ΔJKL is a right angled triangle in which $\overline{LM} \perp \overline{JK}$ as shown in the figure below.



If JM = 3cm and KM = 12cm, then what is the length of $\overline{JL}$?

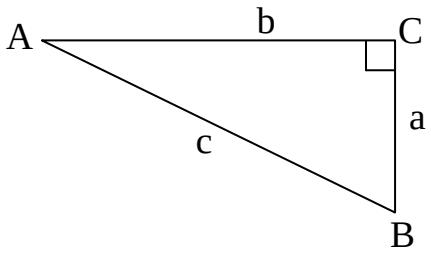
A. $3\sqrt{5}$ cm

B. 6cm

C. $6\sqrt{5}$ cm

D. 15cm

39. Assume ΔABC is a right angled triangle and the lengths of its sides are a, b and c as shown in the figure below.



Based on this triangle, which one of the following is the **correct** trigonometric ratio?

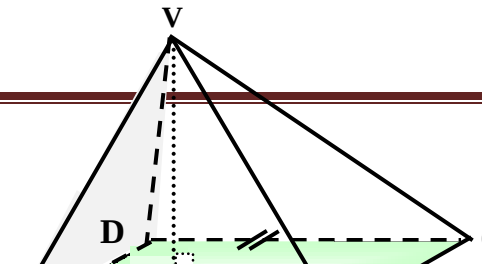
A. $\tan \angle A = \frac{b}{a}$

B. $\cos \angle A = \frac{a}{c}$

C. $\sin \angle B = \frac{b}{c}$

D. $\tan \angle B = \frac{a}{b}$

40. A rectangular pyramid is given as shown in the figure below.



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

A. $\overline{VA}$

B. $\overline{AB}$

C. $\overline{VB}$

D. $\overline{VC}$

THE END