THE VILLAGE
INTERNATIONAL SCHOOL
"We Nurture Dreams"

AIM HIGH, TOGETHER WE FLY

Date:	THIRD MONTHLY TEST Revision (2022-23)	Max Marks: 40
GRADE: X	MATEMATICS (041)	Time: 1 hours

GENERAL INSTRUCTIONS:

*This question paper contains four Sections A, B, C, and D. Each part is compulsory.
*Section A has Objective type questions and Sections B, C, and D have descriptive type questions
*Section A comprises 6 questions of 1 mark each
*Section B comprises10 questions of 2 marks each
*Section C comprises 10 questions of 3 marks each
*Section D comprises questions of marks each

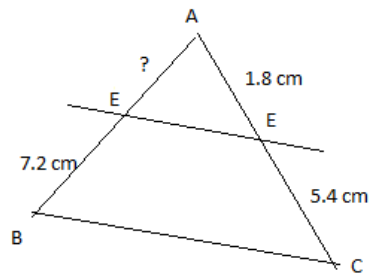***

SECTION -A

(10 X1= 10)

1) In the second quadrant, for a point, the abscissa is ....
and the ordinate is ....
(a) positive, negative
(b) negative, positive
(c) negative, negative
(d) positive, positive
Ans. (b) negative, positive

2) in the figure given below, DE//BC ,then AD is,

a)   1.2 cm   b) 2.4 cm   c)   4.8 cm   d) 3.6 cm

3)The distance of the point (4,7) from the x-axis is

a)   4   b) 7   c)   11   d)$\sqrt{65}$

4) The distance of a point (− 5, 12) from the origin is:
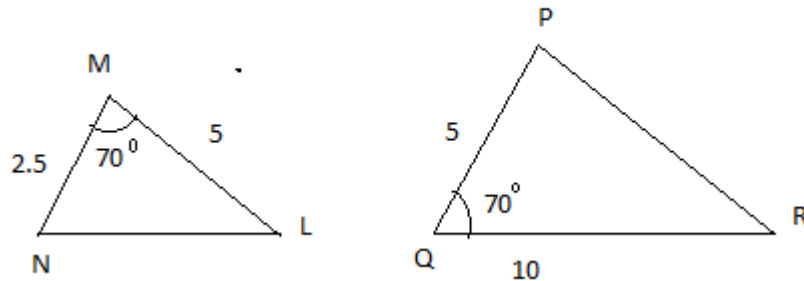(a) 17 units
(b) 7 units
(c) 13 units
(d) none of these
Ans. (c) 13 units

5) The distance between the points (0, 5) and (− 5, 0) is:
(a) 5
(b) $5\sqrt{2}$
(c) − 5
(d)$6\sqrt{2}$
Ans. (b)

6) In the following figure, Δ ABC ~ ΔQRP. Which similarity criterion is used here.

a) A-S-A

b) A-A-A

c) S-A-S

d) none of them

7)........... is the point of intersection of the coordinate axes.
(a) X-axis
(b) Y-axis
(c) Origin
(d) None of these
Ans. (c) Origin

8) All squares are ....

a) equal   b) congruent   c) similar   d) none of these

9) A vertical pole 6m long casts a shadow of length 3.6 m on the ground.What is the height of a tower which casts a shadow of length 18m at the same time.

a)10.8 m   b) 28.8 m

c)32.4 m   d) 30 m

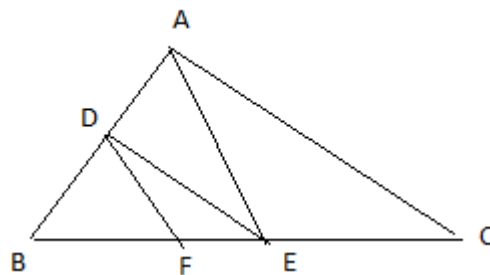10) What is the distance between the points A(c, 0) and B (0, − c)

a) $2c^2$ b) 2c   c)2 $\sqrt{c}$ d) $\sqrt{2}$ c

SECTION-B

Each question carries   2 marks   (5 X 2= 10 marks)

11)In the following figure DE//AC, DF//AE ,prove that $\frac{BF}{FE} = \frac{BE}{EC}$

OR

ii)

3

12) If the point P(6, 2) divides the line segment joining A(6, 5) and B(4, y) in the ratio 3 : 1, then Find the value of y.

13) Find a relation between x and y such that the point (x, y) is equi-distant from the point (3,6) and (-3,4) .

14) A vertical pole of length 6m casts a shadow 4m long on the ground and at the same time a tower casts a shadow 28m long. Find the height of the tower.

Mark the option which is most suitable:
  (a) Both the Assertion and the Reason are correct and the Reason
     is the correct explanation of the Assertion.
  (b) The Assertion and the Reason are correct but the Reason is not
     the correct explanation of the Assertion.
  (c) Assertion is true but the Reason is false.
  (d) Assertion is false but the Reason is true.

15) **Assertion:** By using graph we can locate (0,4) on the y-axis.
Reason: A point whose y-coordinate is zero lies on the x-axis.
Ans. (b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

SECTION -C

Each question carries   3 marks   (4 X 3 = 12 marks)

16) Prove that ,If a line is drawn parallel to one side of a triangle to intersect other two sides in distinct points ,the other two sides are divided in the same ratio.

17) In ΔABC, DE || BC such that AD = (4x – 3) cm, AE = (8x – 7) cm, BD = (3x – 1) cm and CE = (5x – 3) cm. Find the value of x.

Sol. In ΔABC, we have
DE || BC
So, = [Thales' theorem]
⇒ =
⇒ (4x – 3)(5x – 3) = (8x – 7)(3x – 1)
⇒ 20x2 – 15x – 12x + 9 = 24x2 – 21x – 8x + 7
⇒ 4x2 – 2x – 2 = 0
⇒ 2x2 – x – 1 = 0
⇒ 2x2 – 2x + x – 1 = 0
⇒ 2x(x – 1) + 1(x – 1) = 0
⇒ (x – 1)(2x + 1) = 0
⇒ x = 1

In the given figure, if ΔEDC ~ ΔEBA, ∠BEC = 115° and ∠EDC = 70°, find ∠DEC, ∠DCE, ∠EAB, ∠AEB and ∠EBA.
[NCERT]
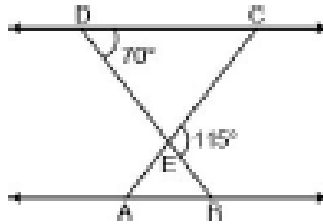
Ans. ∠DEC = 65°, ∠DCE = 45°, ∠EAB = 45°, ∠AEB = 65° and ∠EBA = 70°.

18) If (1,2) ,(4,y), (x,6) and (3 ,5) are the vertices of a parallelogram taken in order, find x and y.

19) Find the perimeter of a triangle with vertices A(0, 4), B(0, 0) and C(3, 0).
Sol. Given, A(0, 4), B(0, 0) and C(3, 0)
Thus, Perimeter = AB + BC + CA
=
=
= (4 + 3 + 5) units
= 12 units. **Ans.**

SECTION - D

Each question carries   4 marks
(2 X 4= 8 marks)

20) On one day, a poor girl is looking for a lamp-post for completing her homework as in her area power is not there and she finds the same at some distance away from her home. After completing the homework, she is walking away from the base of a lamp-post at a speed of 1.2 m/s. The lamp post is 3.6 m above the ground and height of the girl is 90 cm (see below figure).
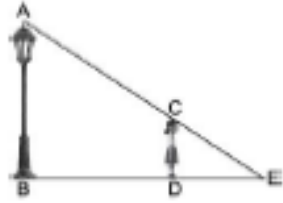
(i) The distance of the girl from the base of the lamp post after 4 seconds:
(a) 1·2
(b) 3·6 m
(c) 4·8 m
(d) none of these
Ans. (c) 4·8 m
Explanation :
Let AB denote the lamp-post and CD be the girl after walking for 4 seconds away from the lamp-post.
Now, her distance from the base of the lamp
BD = 1·2 m × 4
= 4·8 m.
(ii) The correct similarity criteria appliable for triangles ABE and CDE is:
(a) AA
(b) SAS
(c) SSS
(d) AAS
Ans. (a) AA
Explanation :
In Δ ABE and Δ CDE, ∠B = ∠D (Each is of 90 °)and ∠E = ∠E (Same angle)
So, ΔABE ~ ΔCDE (AA similarity criterion)
(iii) The length of her shadow after 4 seconds is:
(a) 1·2 m
(b) 3·6 m

21) Students of class X are on visit of Sansad Bhawan. Teacher assign them the activity to observe and take some pictures to analyses the seating arrangement between various MP and speaker based on coordinate geometry. The staff tour guide explained various facts related to Math's of Sansad Bhawan to
the students, students were surprised when teacher ask them you need to apply coordinate geometry on the seating arrangement of MP's and speaker.
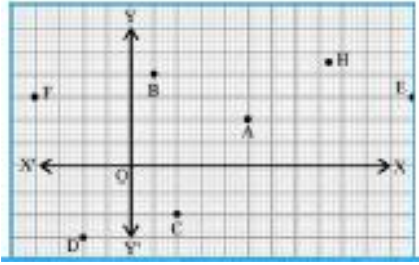
Calculate the following refer to the above image and graph.
Answer the following questions:

(i) Refer to the points D and C, find the distance between the points

C and D, if the co-ordinates of C is (2, − 2) and D is (− 2, − 3):

(a) units

(b) 6.4 units

(c) 5 units

(d) 7 units

Ans. (a) units

Explanation :

Distance between C(2, − 2) and D(− 2, − 3) is

D =

D =

D = units Ans.

(ii) Refer to the points D, A and H, condition for collinearity of points

DAH satisfy by relation:

(a) DA = AH = DH

(b) DA + AH = DH

(c) DA + AH **>** DH
(d) DA + AH **<** DH
Ans. (b) DA + AH = DH
Explanation :
From the given figure, it is clear that
DA + AH = DH **Ans.**
(iii) Refer to the points B and C, join BC. Mark a point P on BC and P divides the line segment B(1, 4) and C(2, − 2) such as if P lies on the line $x - y = - 1$. Find the value of k.
(a)
(b)
(c)
(d)
Ans. (c)
Explanation :

Given that P divides the line segment joining B(1, 4) and C(2, − 2) in the ratio $k : 1$ so the coordinates of P are
lies on the line segment
$x - y = - 1$
$= - 1$
$\Rightarrow 2k + 1 + 2k - 4 = - k - 1$
$\Rightarrow 5k = 2$

$\Rightarrow k =$ **Ans.**
(iv) Refer to the points F and E, Find the mid-point of the line segment joining by the points F(− 4, 3) and E(12, 3).
(a) (4, 4)
(b) (3, − 4)
(c) (− 4, 8)
(d) (4, 3)
Ans. (d) (4, 3)
Explanation :
Given point F(− 4, 3) and E(12, 3).
Coordinates of mid-point are
Ans.
(v) Refer to the point B and C, If B is, consider as origin then coordinates of C are :
(a) (1, 4)
(b) (1, − 6)
(c) (− 4, − 6)
(d) (0, 0)
Ans. (b) (1, − 6)
Explanation :
Coordinates of C are (1, − 6).**Ans.**

Explanation :
Coordinates of C are (1, − 6).**Ans.**