MATTHAYOM 2 BASIC MATHEMATICS

TOPICS : Geometric Transformation , Properties of Exponents,

Long Test Before Final Exam

Part 1: Multiple – Choice (40 items)

1. Which of the following statements is/are true about geometric transformations?

   i. Geometric translation takes place when all points on a plane are moved in the same direction through the same distance.

   ii. When all points on a plane are flipped over in the same plane across a mirror line, then an object undergoes rotation.

   iii. An object undergoes transformation when there is a change in size, shape or direction.

   iv. Counterclockwise rotation is the rotation of all points on a plane in the same direction as a clock's hands.

   a. i,ii, iii, iv b. iii only c. i,ii and iii d. i and iii only

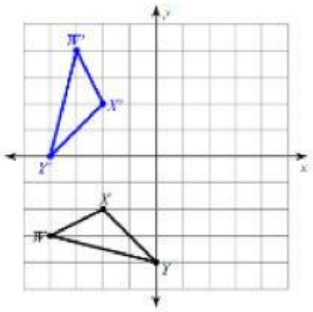
2. An image on the right undergoes rotation, which of the following best describes the rule?

   a. 90^0 clockwise rotation about the origin

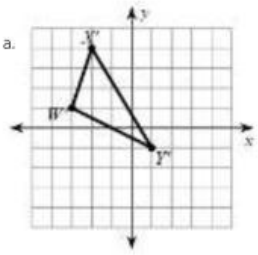
   b. 90^0 counterclockwise about the origin

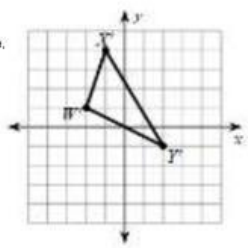
   c. 180^0 about the origin

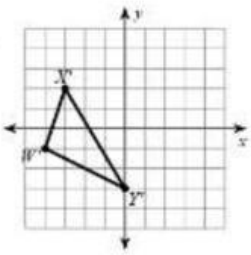
   d. 270^0 clockwise about the origin

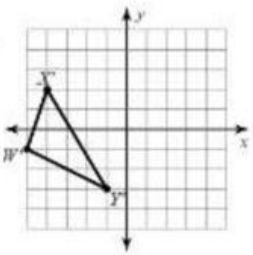


3. Given ΔWXY with coordinates W (0, -1), X(1,2), Y(4, -3) undergoes translation under vector (-3, 2). Which of the following shows the graph of the image?

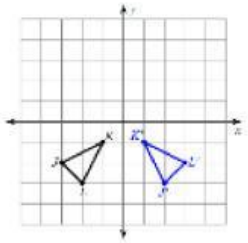
a. 

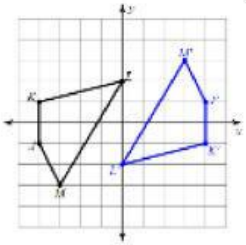
b. 

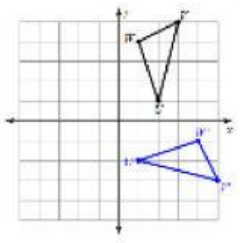
c. 

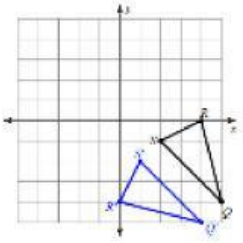
d. 

4. Which of the following transformations shows a rotation of 90^0 clockwise about the origin?

a. 

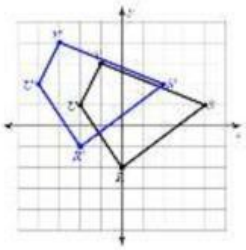
b. 

c. 

d. 

5. Given Pt. A with coordinates (5, -1) undergoes a rotation of 180^0 about the origin, what are the coordinates of pt. A'?

   a. (5, 1) b. (-5 , -1) c. (5, -1) d. (-5, 1)



6. Which of the following best describes the translation vector of the transformation on the right?

   a. (2, 1) b. (-2, 1) c. (2, -1) d. (-2, -1)

7. The coordinates of a point and its image are given under reflection: A(-2, 5)⟶ A'(-2, 1)

   Which of the following is its axis of reflection?

   a. x – axis b. y = 3 c. x = 1 d. y = x

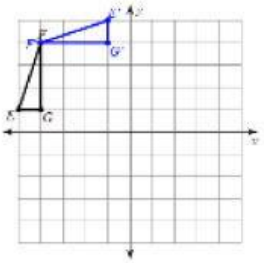
8. Which of the following best describes the transformation of ΔEFG on the right?

   a. 90^0 counterclockwise rotation about the origin

   b. reflection across the y – axis

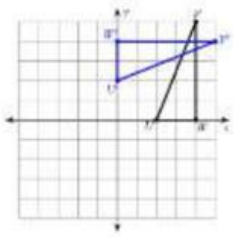
   c. reflection across y = -x

   d. 180^0 rotation about the origin



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9. Which rule best describes the geometric reflection of ΔUVW on the right?



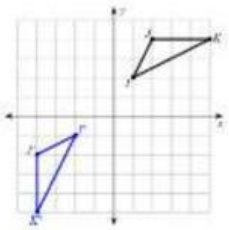
a. reflection across x = 3

b. reflection across y= -x

c. reflection across y = x

d. reflection across y = 1

10. Which rule best describes the transformation of ΔIJK on the right?



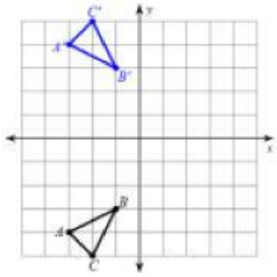
a. rotation 90^0 clockwise about the origin

b. translation: 3 units left and 4 units down

c. reflection across x- axis

d. reflection across y = -x

11. Which rule best describes the transformation of ΔABC on the right?



a. reflection across the x – axis

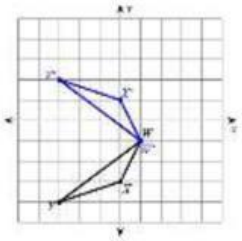
b. translation: 6 units right and 5 units up

c. rotation 90^0 clockwise about the origin

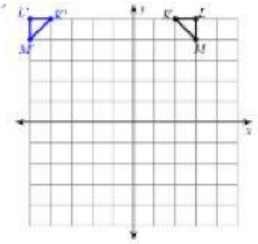
d. rotation 90^0 counterclockwise about the origin

12. Which of the following transformation shows the reflection is across the line $y = -1$?

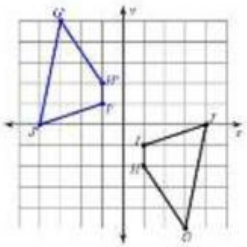
a.



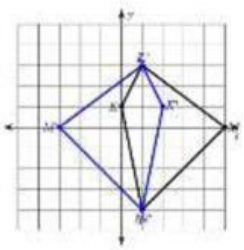
b.



c.



d.



13. A quadrilateral KLMN on the right undergoes reflection across which mirror line?

a. across $x = 1$

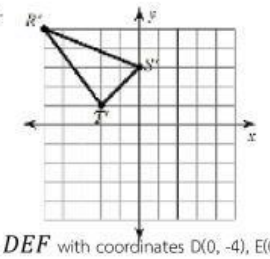
b. across $y = -1$

c. across the y – axis

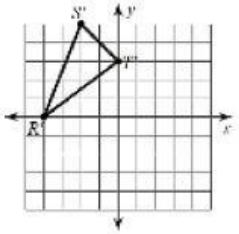
d. across $x = 2$

14. Given $\triangle RST$ with coordinates $R(-5,-5), S(-3,0), T(-1,-2)$ undergoes rotation of 90^0 counterclockwise about the origin. Which of the following shows the graph of the image $\triangle R'S'T'$?

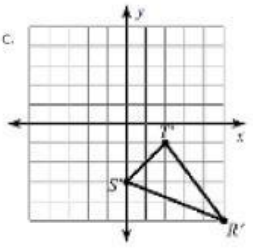
a.



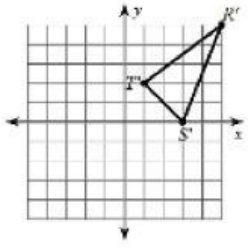
b.



c.



d.



15. Given $\triangle DEF$ with coordinates D(0, -4), E(0, 1) , F(4, -1) undergoes translation: (-5, 3). Which of the following shows the coordinates of the image $\triangle D'E'F'$?

a. D'(-5, -1), E'(-5, 4), F'(-1, 2)

b. D'(-5, -4), E'(-5, 1), F'(-1, -1)

c. D'(-2,0), E'(-2, 5), F'(2, 3)

d. D'(1, -4), E'(1, 1), F'(5, -1)

16. Which of the following statements is true?

a. $a^m \times a^n = a^{mn}$

b. $(a^m)^n = a^{m+n}$

c. $\frac{1}{a^{-n}} = a^n$

d. $\left(\frac{a}{b}\right)^n = \frac{a^n}{b}$

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17. Which of the following is **not true** about 2^5 ?

a. 2 is the base b. $2^5 = 10$ c. $2 \times 2 \times 2 \times 2 \times 2$ d. 5 is exponent

18. Any nonzero number to a zero power is equal to_____.

a. -1 b. 0 c. 1 d. undefined

19. Evaluate: $(-2)^4 \times (-2)^2 \div (-2)^0$

a. -32 b. 64 c. 256 d. -64

20. Which of the following is the equivalent exponential form of 64 with a prime number base?

a. 4^4 b. 2^6 c. 8^2 d. 3^4

21. Which of the following is the simplest answer of the expression : $\frac{2^{-3} \times (2^2)^4}{(2^3)^{-2}}$?

a. 2 b. $\frac{1}{2^3}$ c. 2^{11} d. 2^8

22. Simplify the expression: $\left(\frac{2^5}{2 \times 2^0}\right)^0$

a. 1 b. 2^6 c. $\frac{1}{2^2}$ d. $\frac{1}{2^5}$

23. Which of the following is the simplest form of the expression: $\frac{-n^{-2}}{-mn^5 \cdot (-nm^4)^0}$?

a. $\frac{1}{n^7 m}$ b. $n^{26}m^2$ c. $\frac{n^{28}}{m^4}$ d. $-\frac{1}{nm^4}$

24. Simplify the expression : $\left(\frac{2m^0q^3 \cdot 2pm^{-4}q^{-4}}{m^{-3}p^3q^3}\right)^{-3}$

a. $\frac{p}{q^4}$ b. $\frac{m^4q^{10}}{p^3}$ c. $\frac{m^3q^{12}p^6}{64}$ d. $\frac{m^2q^2}{8}$

25. Simplify the expression: $\frac{y^4z^3}{x^{-4}y^{-1}z^4 \cdot (2x^2y^4z^4)^{-2}}$

a. $4x^8y^{13}z^7$ b. $\frac{y^4z^4}{4x^6}$ c. $16x^{28}y^{24}z^{28}$ d. $\frac{z^{15}}{x^4y^{10}}$

26. What is the expanded form of the notation: 5.018×10^5?

a. 501800 b. 50180 c. 501800000 d. 0.00005018

27. What is the scientific notation of 0.00000104?

a. 1.4×10^{-7} b. 1.04×10^{-6} c. 10.4×10^{-5} d. 1.04×10^2

28. Which of the following is the correct scientific notation of **601.2×10^4** ?

a. 6.012×10^6 b. 6.012×10^2 c. 6.012×10^{-6} d. 6.012×10^{-2}

29. Which of the following is the correct scientific notation of 0.71×10^{-4} ?

a. 7.1×10^{-6} b. 0.71×10^5 c. 7.1×10^{-5} d. 71×10^{-6}

30. Simplify and choose the correct answer in scientific notation : $(2.4 \times 10^{-3})(2.6 \times 10^{-3})$

a. 6.24×10^{-5} b. 6.24×10^6 c. 9.231×10^{-1} d. 6.24×10^{-6}

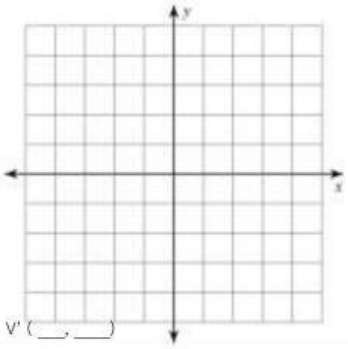
LIVEWORKSHEETS

Part 2: You may print this one and paste it to your notebook. Then , submit it to me personally or take a picture and send it to my line.

Graph the pre – image and the image on the plane. Plot the new image, then write their coordinates.

2.1) translation: 2 units left and 1 unit down

$V(2, -4), W(2, 0), X(4, -2)$



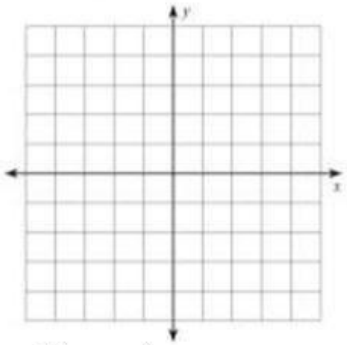
V' (___, ____)

X' (___, ____)

W' (___, ____)

2.2) reflection across the x – axis

$T(2, -5), U(2, -2), V(5, -3)$



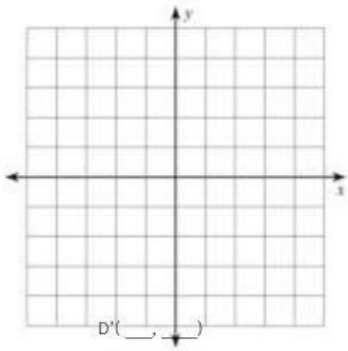
T' (___, ____)

U' (___, ____)

V' (___, ____)

2.3) rotation 90^0 clockwise about the origin

$D(-1, -5), E(-1, -3), F(3, -4)$



D'(___, ____)

E' (___, ____)

F' (___, ____)

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