

Part 1: Multiple – Choice (40 items)

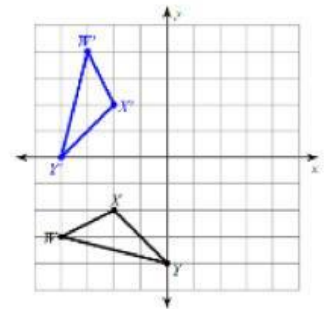
1. Which of the following statements is/are true about geometric transformations?

- 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.

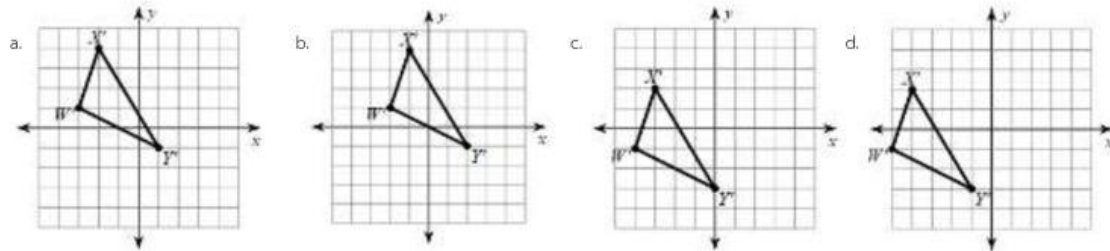
- a. i,ii, iii, iv b. iii only c. i,ii and iii d. i and iii only

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

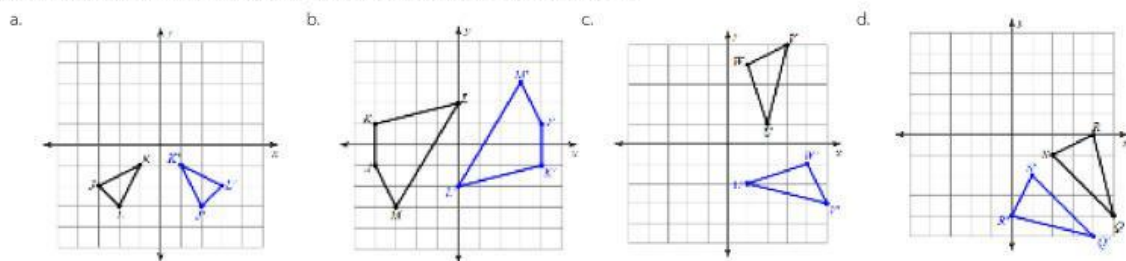
- a. 90° clockwise rotation about the origin
- b. 90° counterclockwise about the origin
- c. 180° about the origin
- d. 270° clockwise about the origin



3. Given $\triangle WXY$ 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?



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

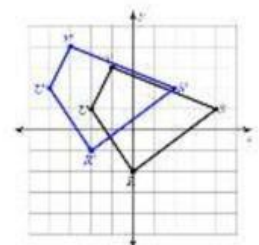


5. Given Pt. A with coordinates (5, -1) undergoes a rotation of 180° about the origin, what are the coordinates of pt. A'?

- 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)



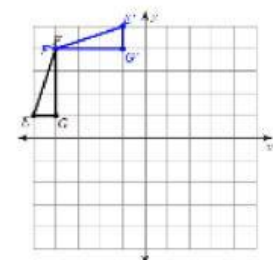
7. The coordinates of a point and its image are given under reflection: $A(-2, 5) \rightarrow A'(-2, 1)$

Which of the following is its axis of reflection?

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

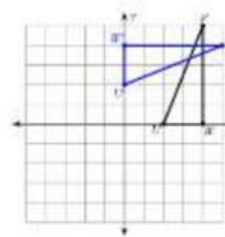
8. Which of the following best describes the transformation of $\triangle EFG$ on the right?

- a. 90° counterclockwise rotation about the origin
- b. reflection across the y – axis
- c. reflection across $y = -x$
- d. 180° rotation about the origin



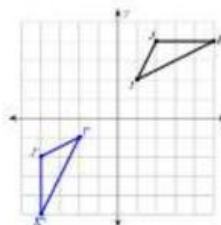
9. Which rule best describes the geometric reflection of $\triangle UVW$ on the right?

- a. reflection across $x = 3$
- b. reflection across $y = -x$
- c. reflection across $y = x$
- d. reflection across $y = 1$



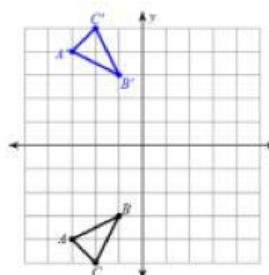
10. Which rule best describes the transformation of $\triangle IJK$ on the right?

- a. rotation 90° clockwise about the origin
- b. translation: 3 units left and 4 units down
- c. reflection across x -axis
- d. reflection across $y = -x$



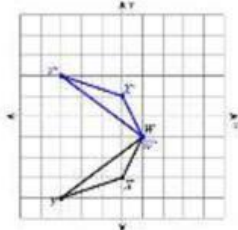
11. Which rule best describes the transformation of $\triangle ABC$ on the right?

- a. reflection across the x -axis
- b. translation: 6 units right and 5 units up
- c. rotation 90° clockwise about the origin
- d. rotation 90° counterclockwise about the origin

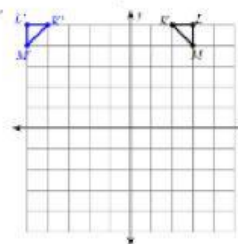


12. Which of the following transformation shows the reflection is across the line $y = -1$?

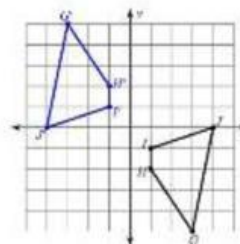
a.



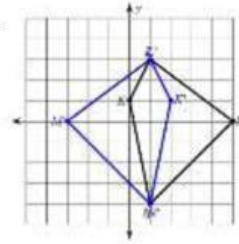
b.



c.



d.

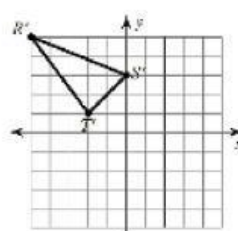


13. A quadrilateral KLMN on the right undergoes reflection across which mirror line?

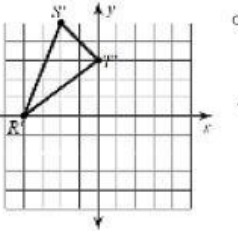
- a. across $x = 1$
- b. across $y = -1$
- c. across the y -axis
- d. across $x = 2$

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

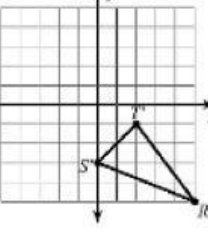
a.



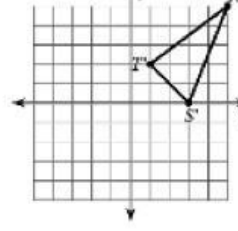
b.



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

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. $\frac{1}{n^7m}$ 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}

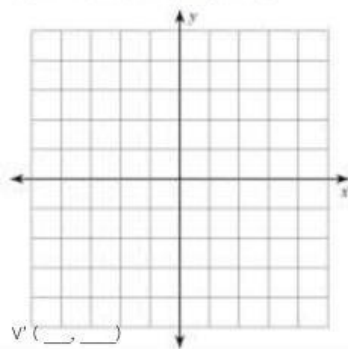
Part 2: You may print this one and paste it to your notebook. Then , submit it to me personally or take a picture and send it to my line.

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 2.2) reflection across the x - axis 2.3) rotation 90° clockwise

1 unit down

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

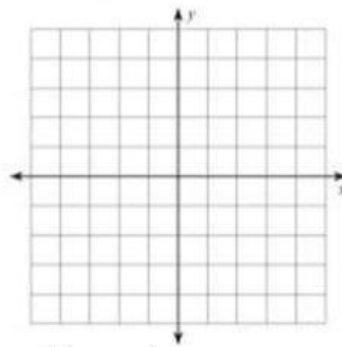


$V' (_, _)$

$X' (_, _)$

$W' (_, _)$

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



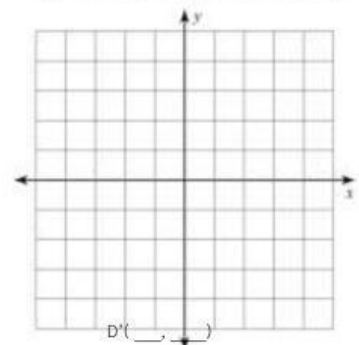
$T' (_, _)$

$U' (_, _)$

$V' (_, _)$

about the origin

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



$D' (_, _)$

$E' (_, _)$

$F' (_, _)$