1. Point $A$ is located at $(4, -7)$. The point is reflected in the $x$-axis. Its image is located at
   1) $(-4, 7)$
   2) $(-4, -7)$
   3) $(4, 7)$
   4) $(7, -4)$

2. When the point $(2, -5)$ is reflected in the $x$-axis, what are the coordinates of its image?
   1) $(-5, 2)$
   2) $(-2, 5)$
   3) $(2, 5)$
   4) $(5, 2)$

3. What is the image of point $(3, 7)$ after a reflection in the $x$-axis?
   1) $(3, 7)$
   2) $(-3, -7)$
   3) $(3, -7)$
   4) $(7, -3)$

4. What are the coordinates of point $(2, -3)$ after it is reflected over the $x$-axis?
   1) $(2, 3)$
   2) $(-2, 3)$
   3) $(-2, -3)$
   4) $(-3, 2)$

5. Point $(-2, 3)$ is reflected in the $x$-axis. In which quadrant does its image lie?
   1) I
   2) II
   3) III
   4) IV

6. Reflecting $(5, 1)$ in the $y$-axis yields an image of
   1) $(5, -1)$
   2) $(-5, -1)$
   3) $(5, 1)$
   4) $(-5, 1)$

7. The image of point $(3, 4)$ when reflected in the $y$-axis is
   1) $(-3, -4)$
   2) $(-3, 4)$
   3) $(3, -4)$
   4) $(4, 3)$

8. What is the image of the point $(2, -3)$ after the transformation $r_{y = -3}$?
   1) $(2, 3)$
   2) $(-2, 3)$
   3) $(-2, -3)$
   4) $(-3, 2)$

9. What are the coordinates of point $P$, the image of point $(3, -4)$ after a reflection in the line $y = x$?
   1) $(3, 4)$
   2) $(3, -4)$
   3) $(4, -3)$
   4) $(4, 3)$

10. What is the image of $(5, -2)$ under the transformation $r_{y = x}$?
   1) $(-5, 2)$
    2) $(5, 2)$
    3) $(2, 5)$
    4) $(-2, 5)$
11 If the point \((2, -5)\) is reflected in the line \(y = x\), then the image is?
   1) \((5, -2)\)
   2) \((-2, 5)\)
   3) \((-5, 2)\)
   4) \((-5, -2)\)

12 The coordinates of point \(A\) are \((-3a, 4b)\). If point \(A'\) is the image of point \(A\) reflected over the line \(y = x\), the coordinates of \(A'\) are
   1) \((4b, -3a)\)
   2) \((3a, 4b)\)
   3) \((-3a, -4b)\)
   4) \((-4b, -3a)\)

13 A function, \(f\), is defined by the set \(\{(2, 3), (4, 7), (-1, 5)\}\). If \(f\) is reflected in the line \(y = x\), which point will be in the reflection?
   1) \((5, -1)\)
   2) \((-5, 1)\)
   3) \((1, -5)\)
   4) \((-1, 5)\)

14 What is the image of point \((-3, -1)\) under a reflection in the origin?
   1) \((3, 1)\)
   2) \((-3, 1)\)
   3) \((1, 3)\)
   4) \((-1, -3)\)

15 The point \((-3, -2)\) is reflected in the origin. The coordinates of its image are
   1) \((-2, -3)\)
   2) \((3, 2)\)
   3) \((2, 3)\)
   4) \((-3, 2)\)

16 If \(M(-2, 8)\) is reflected in the \(y\)-axis, what are the coordinates of \(M'\), the image of \(M\)?

17 Find the image of \((1, 5)\) when it is reflected over the line \(y = x\).

18 Find the image of \(P(2, -5)\) under the transformation \(r_{y=x}\).

19 Find the image of \(P(4, -2)\) under the transformation \(r_{y=x}\).

20 Find the coordinates of the image of point \((5, 2)\) after a reflection in the line \(y = x\).
G.G.54: Reflections 1: Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections)

**Answer Section**

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