1. Find $|2\mathbf{i} - 3\mathbf{j} + 6\mathbf{k}|$.

   _____

2. Enlarge $(4, 3)$ with centre $(2, 1)$ and scale factor 3.

   ☐ $(8, 7)$

   ☐ $(12, 9)$

   ☐ $(10, 8)$

   ☐ $(6, 6)$

3. $\mathbf{a} = (1, 5, 2)$ and $\mathbf{b} = (4, 1, 2)$. Which is $\overrightarrow{AB}$?

   ☐ $(4, 5, 4)$

   ☐ $(3, -4, 0)$

   ☐ $(5, 6, 4)$

   ☐ $(-3, 4, 0)$

4. Enlarge $(3, 1)$ with centre $(1, 1)$ and scale factor -1.

   ☐ $(1, -1)$

   ☐ $(2, 0)$

   ☐ $(-1, 1)$

   ☐ $(-3, -1)$

5. $P(2, -1, 3)$ and $Q(5, 3, 3)$. Find the distance PQ.

   _____

6. Rotate $(2, 5)$ by $90°$ anticlockwise about the origin.

   ☐ $(5, -2)$

   ☐ $(-5, 2)$

   ☐ $(5, 2)$

   ☐ $(-2, -5)$

7. $(2, -6, 4)$ and $(-1, 3, -2)$ are parallel.

   ☐ True ☐ False

exercises.lol exercises.com.cn

_____ cm^2

9. $A(0, 0, 0)$, $B(6, 3, 9)$. P divides AB in the ratio $1 : 2$. Find P.

   ☐ $(4, 2, 6)$

   ☐ $(2, 1, 3)$

   ☐ $(6, 3, 9)$

   ☐ $(3, 1.5, 4.5)$

10. Rotating then reflecting a point always gives the same image as reflecting then rotating.

    ☐ True ☐ False

1. **7**

   $\sqrt{4+9+36} = \sqrt{49} = 7$.

2. $(8, 7)$

   $(2,1) + 3(2,2)$.

3. $(3, -4, 0)$

   $\mathbf{b} - \mathbf{a}$, end minus start.

4. $(-1, 1)$

   $(1,1) - (2,0)$.

5. **5**

   $\overrightarrow{PQ} = (3,4,0)$, length 5.

6. $(-5, 2)$

   $(x, y) \to (-y, x)$.

7. **True**

   The first is -2 times the second.

8. **54 cm^2**

   6×9.

9. $(2, 1, 3)$

   $\mathbf{a} + \frac{1}{3}(\mathbf{b} - \mathbf{a})$.

10. **False**

    The worked case gives $(-1, -4)$ and $(1, 4)$.

exercises.lol exercises.com.cn