

Chapter 6 Review Extra Practice

STUDENT BOOK PAGES 344–347

1. Given the following diagram, N and M are midpoints of their respective sides. Determine a vector that represents each of the following.



- $2\overrightarrow{MC}$
 - $\overrightarrow{BC} - \overrightarrow{NM}$
2. Simplify each of the following vector expressions.
- $\overrightarrow{XY} + (\overrightarrow{YZ} + \overrightarrow{ZW}) + \overrightarrow{WP}$
 - $\overrightarrow{MN} + \overrightarrow{NH} + \overrightarrow{HM} + \overrightarrow{AM}$
 - $(2\overrightarrow{AB} + 2\overrightarrow{CE}) + 2(\overrightarrow{BC} + \overrightarrow{EF})$
 - $\overrightarrow{XY} + 3(\overrightarrow{YX} - 2\overrightarrow{YZ})$
3. If $\vec{a} = \vec{i} + \vec{j}$ and $\vec{b} = 3\vec{i} - 2\vec{j}$, determine if the following vector pairs are collinear.
- \vec{a} and \vec{b}
 - \vec{a} and $-\vec{b}$
 - $5\vec{a} + 5\vec{b}$ and $\frac{1}{2}\vec{b} + \frac{1}{2}\vec{a}$
 - $-\vec{b} + 5\vec{a}$ and $\vec{a} + 7\vec{b}$
 - $\vec{b} - 5\vec{a}$ and $\vec{a} - \frac{1}{5}\vec{b}$
4. Simplify each of the following vector expressions.
- $\vec{a} + 5(\vec{a} + \vec{b})$
 - $12(\vec{a} - \vec{b}) - 2(\vec{b} + \vec{a})$
 - $3\vec{c} - (\vec{a} + 2\vec{b}) - 5(2\vec{c} - \vec{b})$
 - $2\vec{a} - \vec{b} + 3\vec{a} + 5\vec{b} + 3(6\vec{a} - 2\vec{b})$
 - $5(\vec{x} + \vec{y} + \vec{z}) + 7(\vec{x} + 4\vec{y} - \vec{z}) - (3\vec{x} + 2\vec{z})$
5. Determine the axis that the point falls on. Be specific with positive and negative, for example, “the positive x -axis”.
- $(3, 0, 0)$
 - $(0, -5, 0)$
 - $(0, 12, 0)$
 - $(0, 0, -8)$
 - $(0, 0, 1)$
 - $(-9, 0, 0)$
6. Given the points $A(-1, 0)$ and $B(2, 5)$, determine
- \overrightarrow{AB}
 - \overrightarrow{BA}
 - $|\overrightarrow{AB}|$
 - $|\overrightarrow{BA}|$
 - $|\overrightarrow{AB} + \overrightarrow{BA}|$
 - $|\overrightarrow{AB}| + |\overrightarrow{BA}|$
7. Given $\vec{m} = (-1, 2, -1)$ and $\vec{n} = (0, -2, 3)$, determine the following:
- $|\vec{m}|$
 - $|\vec{-n}|$
 - $|\vec{n} + \vec{m}|$
 - $|\vec{m} - 2\vec{n}|$
 - $|\vec{-m} - 5\vec{n}|$
 - $2|\vec{m} - \vec{n}|$
8. Determine which of the following vectors span R^2 .
- $(0, 0)$ and $(0, 1)$
 - $(-3, 0)$ and $(-4, 0)$
 - $(12, 14)$ and $(6, 7)$
 - $(6, 0)$ and $(4, 1)$
 - $(-11, 5)$ and $(1, 2)$
 - $(6, 12)$ and $(12, 24)$