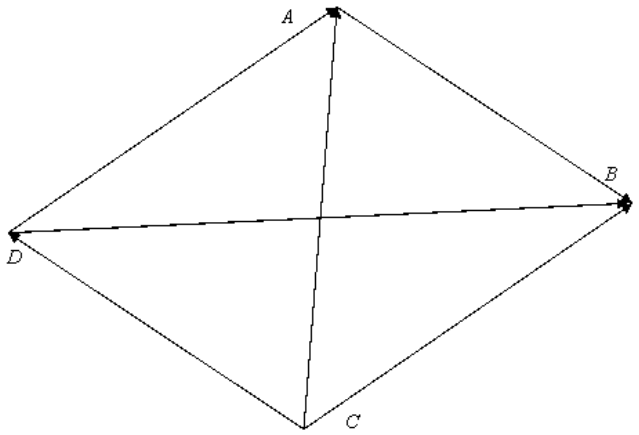
Name: _____ **Date: _____**

MCV4U - Unit 6 Quiz (sections 6.1-6.4) Self-Assessment

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Which cannot be represented by a scalar?
a. speed
b. velocity
c. area
d. mass



____ 2. Which of the following are equal vectors?
a. $\overrightarrow{AB}$ and $\overrightarrow{CD}$
b. $\overrightarrow{DA}$ and $\overrightarrow{CB}$
c. $\overrightarrow{CA}$ and $\overrightarrow{DB}$
d. $\overrightarrow{AB}$ and $\overrightarrow{CB}$

____ 3. A plane flies west at 300 km/h. Which of the following would represent an opposite vector?
a. A plane flying south at 300 km/h
b. A plane flying east at 200 km/h
c. A plane flying north at 200 km/h
d. A plane flying east at 300 km/h

____ 4. Opposite vectors:
a. have the same magnitude
b. have the same direction
c. have the same magnitude and direction
d. have different magnitudes and directions

____ 5. $\overrightarrow{AB}$ is the vector from the point (1, 2) to the point (3, 4). Calculate the magnitude of $\overrightarrow{AB}$.
a. $\sqrt{3}+5$
b. $2\sqrt{2}$
c. 2
d. 8

____ 6. Adding a vector to the zero vector
a. produces the zero vector
b. preserves the non-zero vector
c. changes the vector's direction
d. reduces the vector's magnitude

____ 7. A leaf is floating on a river to the S30°E at 6 km/h. A wind blows to the west at a rate of 3 km/h. What is the leaf's resultant velocity? (The resultant vector forms a right triangle with the other two vectors)

a. $3\sqrt{3}$
b. $3\sqrt{5}$
c. 27
d. 45

____ 8. $\left|\overrightarrow{A}\right| = 5$, $\left|\overrightarrow{B}\right| = 2$. The angle between $\overrightarrow{A}$ and $\overrightarrow{B}$ is 120°. Determine the unit vector in the direction of $\left|\overrightarrow{A} + \overrightarrow{B}\right|$.

a. $\frac{1}{\sqrt{19}}(\overrightarrow{A} + \overrightarrow{B})$
b. $\frac{1}{19}(\overrightarrow{A} + \overrightarrow{B})$
c. $\frac{1}{\sqrt{19}}(\overrightarrow{A} - \overrightarrow{B})$
d. $\sqrt{19}(\overrightarrow{A} + \overrightarrow{B})$

____ 9. If $\overrightarrow{A}$ is a vector representing 50 km/h northeast, what is $\frac{3}{5}\overrightarrow{A}$?

a. 30 km/h southwest
b. 30 km/h northeast
c. 30 km/h northwest
d. 30 km/h southeast

____ 10. If $\left|5\overrightarrow{A}\right| = 15$, then what is $\left|\overrightarrow{A}\right|$?

a. 3
b. 45
c. 15
d. 5

____ 11. $(m+n)\vec{a} = m\vec{a} + n\vec{a}$ conveys which property of scalars?

a. associative property
b. distributive property
c. identity property
d. none of the above

(1)	$4(\vec{b}+\vec{a})+(\vec{c}+\vec{a})+\vec{c}$	=	$4(\vec{b}+\vec{a})+(\vec{a}+\vec{c})+\vec{c}$
(2)		=	$4(\vec{b}+\vec{a})+\vec{a}+(\vec{c}+\vec{c})$
(3)		=	$(4\vec{b}+4\vec{a})+\vec{a}+2\vec{c}$
(4)		=	$4\vec{b}+(4\vec{a}+\vec{a})+2\vec{c}$
		=	$4\vec{b}+5\vec{a}+2\vec{c}$

____ 12. Name the property used in **(4)**.

a. associative property of addition
b. distributive property of addition
c. commutative property of addition
d. distributive property for scalars

____ 13. If $\overrightarrow{A} = 2\vec{i} + 3\vec{j}$ and $\overrightarrow{B} = \vec{i} + 2\vec{j}$, what is $\overrightarrow{A} + \overrightarrow{B}$?

a. $3\vec{i} + 5\vec{j}$
b. $4\vec{i} + 4\vec{j}$
c. $\vec{i} + \vec{j}$
d. $5\vec{i} + 3\vec{j}$

Unit 6 Quiz (sections 6.1-6.4) Self Assessment
Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 REF: Knowledge and Understanding
   OBJ: 6.1 - An Introduction to Vectors
2. ANS: B PTS: 1 REF: Application OBJ: 6.1 - An Introduction to Vectors
3. ANS: D PTS: 1 REF: Application OBJ: 6.1 - An Introduction to Vectors
4. ANS: A PTS: 1 REF: Knowledge and Understanding
   OBJ: 6.1 - An Introduction to Vectors
5. ANS: B PTS: 1 REF: Thinking OBJ: 6.1 - An Introduction to Vectors
6. ANS: B PTS: 1 REF: Knowledge and Understanding
   OBJ: 6.2 - Vector Addition
7. ANS: A PTS: 1 REF: Thinking OBJ: 6.2 - Vector Addition
8. ANS: A PTS: 1 REF: Thinking
   OBJ: 6.3 - Multiplication of a Vector by a Scalar
9. ANS: B PTS: 1 REF: Application
   OBJ: 6.3 - Multiplication of a Vector by a Scalar
10. ANS: A PTS: 1 REF: Knowledge and Understanding
    OBJ: 6.3 - Multiplication of a Vector by a Scalar
11. ANS: B PTS: 1 REF: Knowledge and Understanding
    OBJ: 6.4 - Properties of Vectors
12. ANS: A PTS: 1 REF: Application OBJ: 6.4 - Properties of Vectors
13. ANS: A PTS: 1 REF: Application OBJ: 6.4 - Properties of Vectors