ONTARIO CALCULUS AND VECTORS, GRADE 12, UNIVERSITY PREPARATION (MCV4U) · UNIT C · 25 QUESTIONS

Geometry of Vectors — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 A vector has components (3, 4) Its magnitude is

- A 6
- B 4
- C 5
- D 7

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2 A vector has components (6, 8) Its magnitude is

- A 11
- B 10
- C 9
- D 14

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3 **A vector has components (5, 12) Its magnitude is**

- A 14
- B 12
- C 17
- D 13

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4 **The length of the vector (6, 8) is**

ANSWER _____

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5 **A vector has components (3, 4) The unit vector in its direction has first component, as a fraction,**

- **A** $\frac{4}{5}$
- **B** $\frac{5}{3}$
- **C** $\frac{3}{5}$
- **D** $\frac{3}{4}$

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6 **A vector has components (6, 8) The unit vector in its direction has first component, as a fraction,**

- **A** $\frac{8}{10}$
- **B** $\frac{6}{10}$
- **C** $\frac{10}{6}$
- **D** $\frac{6}{8}$

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7 **A vector has components (5, 12) The unit vector in its direction has first component, as a fraction,**

- **A** $\frac{12}{13}$
- **B** $\frac{13}{5}$
- **C** $\frac{5}{12}$
- **D** $\frac{5}{13}$

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8 **The unit vector in the direction of (3, 4) has first component**

- **A** $\frac{3}{5}$
- **B** $\frac{4}{5}$
- **C** 3
- **D** 5

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9 **The scalar multiple 2(2, 3) is**

A (4, 5)

B (4, 6)

C (4, 3)

D (2, 6)

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10 **The scalar multiple 3(3, 4) is**

A (9, 12)

B (6, 7)

C (9, 4)

D (3, 12)

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11 **The scalar multiple 4(1, 5) is**

- A (4, 20)
- B (5, 9)
- C (4, 5)
- D (1, 20)

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12 **The scalar multiple 2 times the vector (3, -1) is**

- A (6, -2)
- B (3, -2)
- C (6, 1)
- D (5, 1)

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13 **The sum of vectors (1, 2) and (3, 4) is**

A (-2, -2)

B (4, -2)

C (-2, 6)

D (4, 6)

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14 **The sum of vectors (2, 1) and (4, 3) is**

A (-2, -2)

B (6, -2)

C (-2, 4)

D (6, 4)

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15 The sum of vectors (3, 0) and (1, 5) is

- A (2, -5)
- B (4, -5)
- C (4, 5)
- D (2, 5)

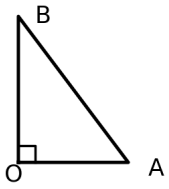
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16 Adding vectors (2, 3) and (1, -1) gives

- A (3, 2)
- B (1, 4)
- C (3, 4)
- D (2, 2)

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17 **The triangle shown represents two vectors added head to tail. The magnitude of the resultant is Figure 1**



A 12

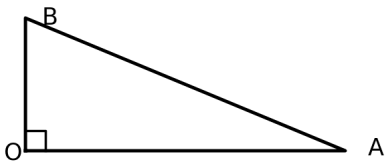
B 10

C 8

D 15

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18 **The triangle shown represents two vectors added head to tail. The magnitude of the resultant is Figure 2**



A 15

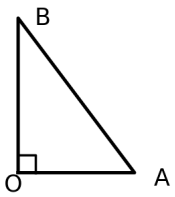
B 13

C 11

D 18

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19 **The triangle shown represents two vectors added head to tail. The magnitude of the resultant is Figure 3**



- **A** 17
- **B** 15
- **C** 13
- **D** 20

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20 **Two vectors are collinear if one is a scalar multiple of the other. The vector (3, 6) is a scalar multiple of (1, 2) by a factor of**

- **A** 4
- **B** 3
- **C** 2
- **D** 1

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21 **Two vectors are collinear if one is a scalar multiple of the other. The vector (4, 8) is a scalar multiple of (1, 2) by a factor of**

- A 4
- B 5
- C 2
- D 1

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22 **Two vectors are collinear if one is a scalar multiple of the other. The vector (5, 10) is a scalar multiple of (1, 2) by a factor of**

- A 6
- B 2
- C 5
- D 1

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23 **The vector (6, 9) is (2, 3) multiplied by a scalar factor of**

ANSWER _____

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24 **A displacement of 2 units east and 2 units north has magnitude, to two decimal places,**

A 3.33

B 2.83

C 2.33

D 4

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25 **A displacement of 3 units east and 3 units north has magnitude, to two decimal places,**

A 4.74

B 3.74

C 6

D 4.24

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ANSWER KEY

1. C
2. B
3. D
4. 10
5. C
6. B
7. D
8. A
9. B
10. A
11. A
12. A
13. D
14. D
15. C
16. A
17. B
18. B
19. B
20. B
21. A
22. C
23. 3
24. B
25. D

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