121-122 · NEW BRUNSWICK

121-122
Practice Test

Unit A: Two-Dimensional Forces and Torque

25 Questions

Original practice test based on the New Brunswick curriculum. Work through each question, then check your answers at the end.

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.

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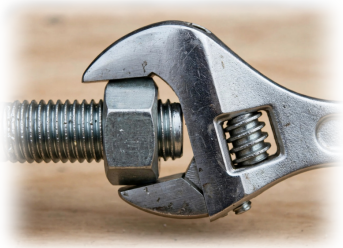

Question 1

A wrench turns a bolt with a force of 10 newtons at a lever arm of 2 metres. The torque in newton metres is

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Question 2

A force of 10 newtons acts at 60 degrees to the horizontal. Its horizontal component in newtons is

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Question 3

A torque of 60 newton metres is produced by a force of 20 newtons. The lever arm in metres is

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Question 4

A force of 20 newtons acts at 30 degrees to the horizontal. Its vertical component in newtons is

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Question 5

A wagon is pulled with a force of 20 newtons at 60 degrees to the horizontal. Its vertical component in newtons to two decimal places is

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Question 6

A force of 40 newtons acts at 60 degrees to the vertical. Its horizontal component in newtons is

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Question 7

A force vector can be resolved into components that are

A) parallel only

B) equal always

C) perpendicular

D) opposite always

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Question 8

A scalar quantity has only

A) direction

B) force

C) velocity

D) magnitude

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Question 9

A seesaw is balanced by a 200 newton weight at 2 metres. The balancing torque in newton metres is

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Question 10

A vector quantity has both magnitude and

A) mass

B) temperature

C) direction

D) speed only

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Question 11

An object in equilibrium on a slope has friction acting

A) down the slope

B) perpendicular to the slope

C) up the slope

D) vertically

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Question 12

An object is in equilibrium with a 30 newton force to the right. The balancing force to the left in newtons is

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Question 13

An object on an incline has weight resolved parallel and perpendicular to the

A) vertical only

B) slope

C) horizontal only

D) normal only

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Question 14

Free body diagrams show all forces acting

A) on all objects

B) in a system only

C) by the object

D) on one object

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Question 15

A sled slides across the snow. Friction acts in the direction opposite to

A) weight

B) normal force

C) applied force

D) motion

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Question 16

If net force is zero an object remains at rest or moves at constant

A) velocity

B) acceleration

C) speed only

D) force

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Question 17

Increasing the lever arm for the same force increases torque because torque equals force times

A) mass

B) distance

C) velocity

D) time

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Question 18

Static equilibrium requires net force and net torque both equal to

A) zero

B) maximum

C) the weight

D) the applied force

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Question 19

Tension in a rope pulling a wooden crate is directed

A) perpendicular to the rope

B) downward always

C) along the rope

D) upward always

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Question 20

The centre of mass of a uniform rod is at its

A) midpoint

B) end

C) pivot

D) heaviest end

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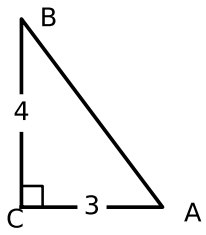

Question 21

Two perpendicular forces of 3 newtons and 4 newtons act on an object. The magnitude of the resultant force in newtons is

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Question 22

A torque is produced by a force of 25 newtons at a lever arm of 4 metres. The torque in newton metres is

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Question 23

A ball is kicked with a force of 30 newtons at 60 degrees to the horizontal. Its horizontal component in newtons is

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Question 24

A torque of 80 newton metres is produced by a force of 40 newtons. The lever arm in metres is

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Question 25

A torque is produced by a force of 15 newtons at a lever arm of 3 metres. The torque in newton metres is

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ANSWER KEY

1. 20
2. 5
3. 3
4. 10
5. 17.32
6. 34.64
7. C
8. D
9. 400
10. C
11. C
12. 30
13. B
14. D
15. D
16. A
17. B
18. A
19. C
20. A
21. 5
22. 100
23. 15
24. 2
25. 45

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