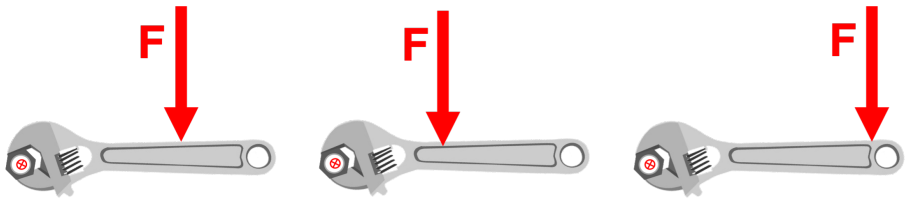
Torque

Activity 1: Turning the Wrench

Question Group 1

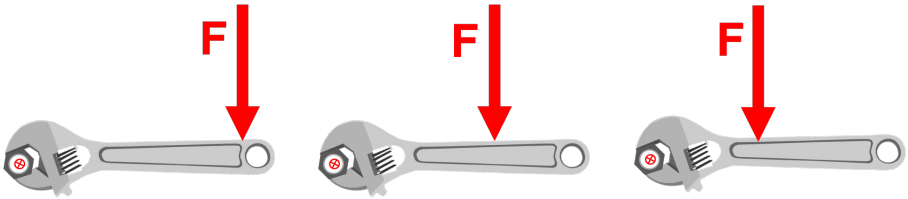
Question 1

The three diagrams display the same amount of force being applied at different locations to the same wrench in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.



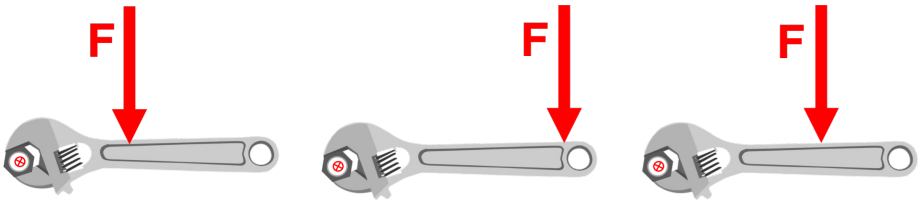
Question 2

The three diagrams display the same amount of force being applied at different locations to the same wrench in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.



Question 3

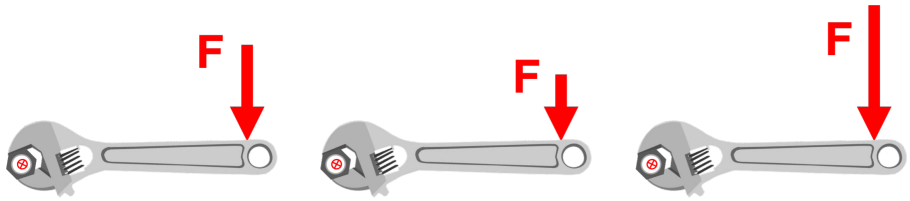
The three diagrams display the same amount of force being applied at different locations to the same wrench in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.



Question Group 2

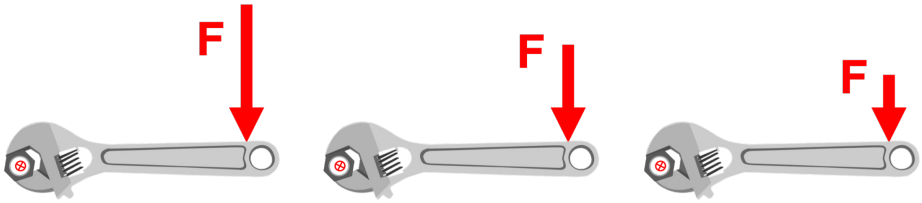
Question 4

The three diagrams display the different amounts of force being applied at the same location to the same wrench in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.



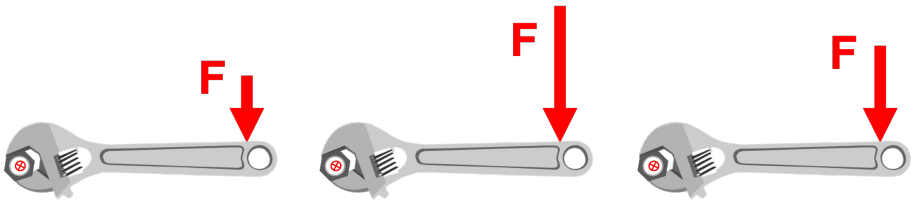
Question 5

The three diagrams display the different amounts of force being applied at the same location to the same wrench in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.



Question 6

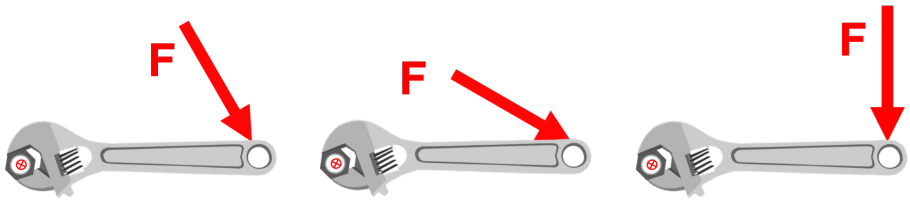
The three diagrams display the different amounts of force being applied at the same location to the same wrench in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.



Question Group 3

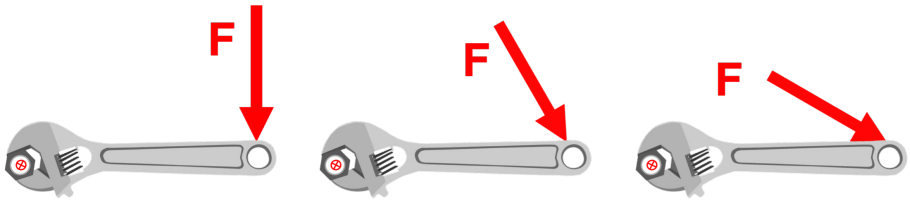
Question 7

The three diagrams display the same amounts of force being applied at the same location to the same wrench but in a different direction in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.



Question 8

The three diagrams display the same amounts of force being applied at the same location to the same wrench but in a different direction in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.



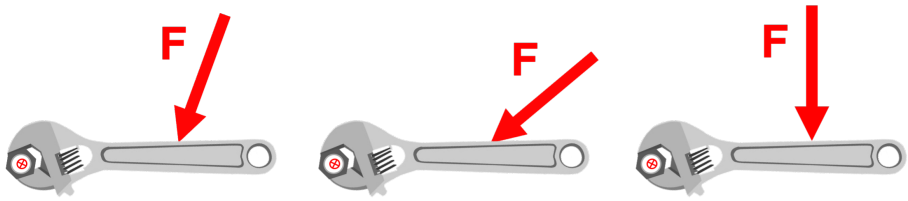
Question 9

The three diagrams display the same amounts of force being applied at the same location to the same wrench but in a different direction in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.

Question Group 4

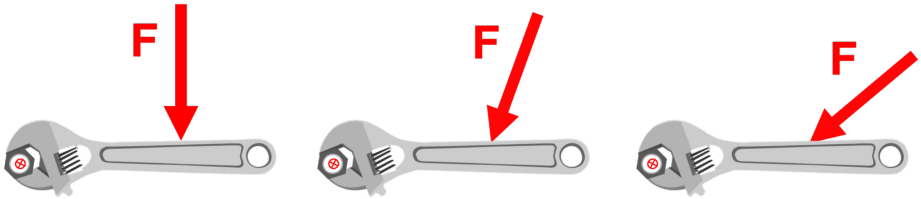
Question 10

The three diagrams display the same amounts of force being applied at the same location to the same wrench but in a different direction in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.



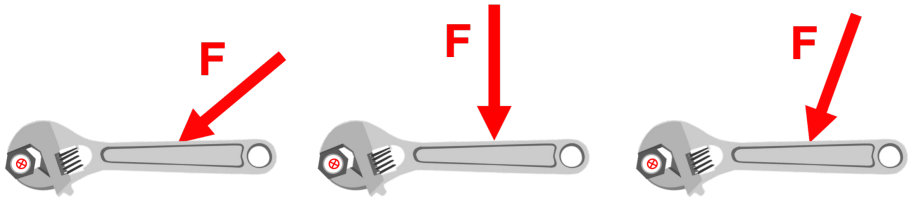
Question 11

The three diagrams display the same amounts of force being applied at the same location to the same wrench but in a different direction in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.

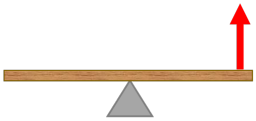


Question 12

The three diagrams display the same amounts of force being applied at the same location to the same wrench but in a different direction in an effort to turn a bolt. Rank the three situations according to the amount of torque provided by the force.

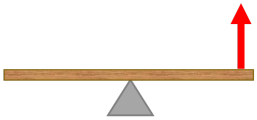


Activity 2: Torque and Rotation
Question Group 5
Question 13



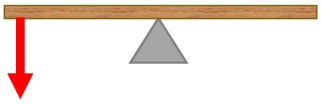
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?
Because of the direction of this force, there is no torque and no rotation.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be negative.
The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.

Question 14



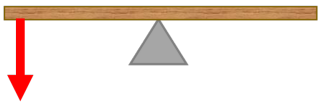
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?
Because of the direction of this force, there is no torque and no rotation.
The torque will cause a clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a counter-clockwise rotation; it's sign would be positive.

Question 15



A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?
The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be negative.
Because of the direction of this force, there is no torque and no rotation.

Question 16

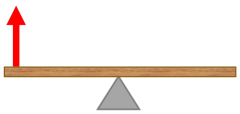


A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?
The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be negative.
Because of the direction of this force, there is no torque and no rotation.

Question Group 6

Question 17

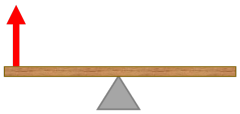
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



Because of the direction of this force, there is no torque and no rotation.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be negative.
The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.

Question 18

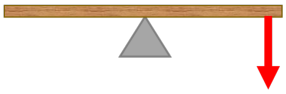
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



Because of the direction of this force, there is no torque and no rotation.
The torque will cause a clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a counter-clockwise rotation; it's sign would be positive.

Question 19

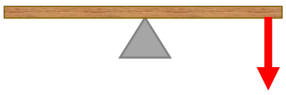
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be negative.
Because of the direction of this force, there is no torque and no rotation.

Question 20

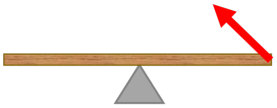
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be negative.
Because of the direction of this force, there is no torque and no rotation.

Question Group 7

Question 21



A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?

Because of the direction of this force, there is no torque and no rotation.

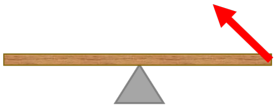
The torque will cause a clockwise rotation; it's sign would be positive.

The torque will cause a clockwise rotation; it's sign would be negative.

The torque will cause a counter-clockwise rotation; it's sign would be positive.

The torque will cause a counter-clockwise rotation; it's sign would be negative.

Question 22



A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?

Because of the direction of this force, there is no torque and no rotation.

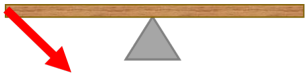
The torque will cause a clockwise rotation; it's sign would be negative.

The torque will cause a clockwise rotation; it's sign would be positive.

The torque will cause a counter-clockwise rotation; it's sign would be negative.

The torque will cause a counter-clockwise rotation; it's sign would be positive.

Question 23



A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?

The torque will cause a counter-clockwise rotation; it's sign would be positive.

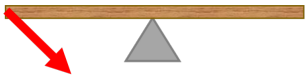
The torque will cause a counter-clockwise rotation; it's sign would be negative.

The torque will cause a clockwise rotation; it's sign would be positive.

The torque will cause a clockwise rotation; it's sign would be negative.

Because of the direction of this force, there is no torque and no rotation.

Question 24



A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?

The torque will cause a counter-clockwise rotation; it's sign would be positive.

The torque will cause a clockwise rotation; it's sign would be positive.

The torque will cause a counter-clockwise rotation; it's sign would be negative.

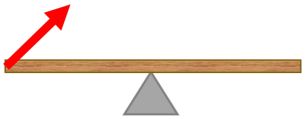
The torque will cause a clockwise rotation; it's sign would be negative.

Because of the direction of this force, there is no torque and no rotation.

Question Group 8

Question 25

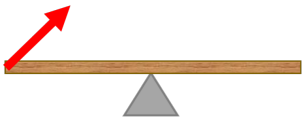
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



Because of the direction of this force, there is no torque and no rotation.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be negative.
The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.

Question 26

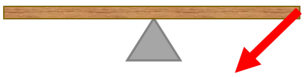
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



Because of the direction of this force, there is no torque and no rotation.
The torque will cause a clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a counter-clockwise rotation; it's sign would be positive.

Question 27

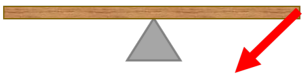
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be negative.
Because of the direction of this force, there is no torque and no rotation.

Question 28

A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?

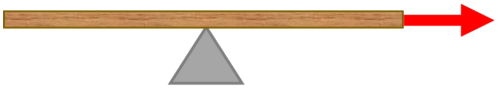


The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be negative.
Because of the direction of this force, there is no torque and no rotation.

Question Group 9

Question 29

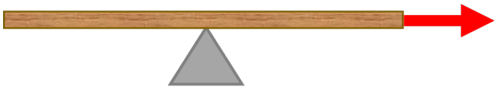
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



Because of the direction of this force, there is no torque and no rotation.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be negative.
The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.

Question 30

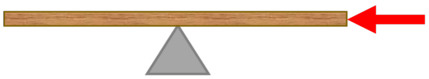
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



Because of the direction of this force, there is no torque and no rotation.
The torque will cause a clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a counter-clockwise rotation; it's sign would be positive.

Question 31

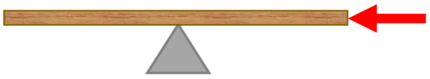
A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be negative.
Because of the direction of this force, there is no torque and no rotation.

Question 32

A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?



The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be negative.
Because of the direction of this force, there is no torque and no rotation.

Question Group 10

Question 33

A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?

Because of the direction of this force, there is no torque and no rotation.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be negative.
The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.

Question 34

A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?

Because of the direction of this force, there is no torque and no rotation.
The torque will cause a clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a counter-clockwise rotation; it's sign would be positive.

Question 35

A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?

The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be negative.
Because of the direction of this force, there is no torque and no rotation.

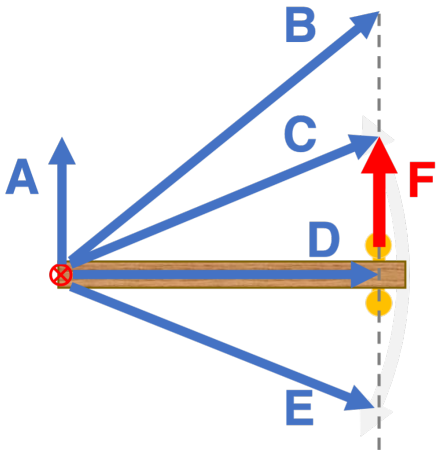
Question 36

A force is applied to a see-saw as shown. Which one of the following statements regarding the resulting torque and rotation is true?

The torque will cause a counter-clockwise rotation; it's sign would be positive.
The torque will cause a clockwise rotation; it's sign would be positive.
The torque will cause a counter-clockwise rotation; it's sign would be negative.
The torque will cause a clockwise rotation; it's sign would be negative.
Because of the direction of this force, there is no torque and no rotation.

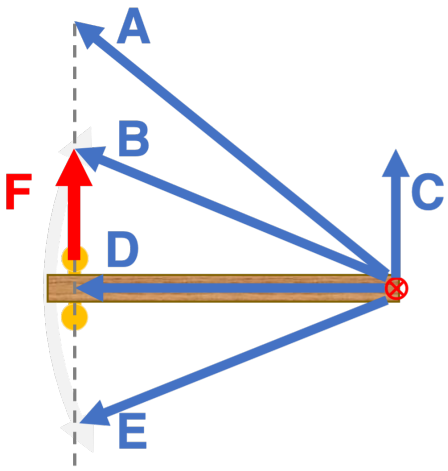
Activity 3: Lever Arm
Question Group 11
Question 37

Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



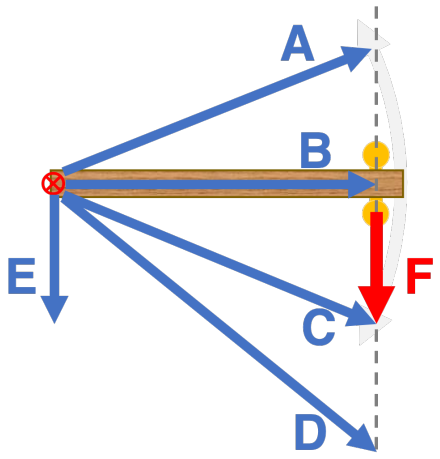
Question 38

Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



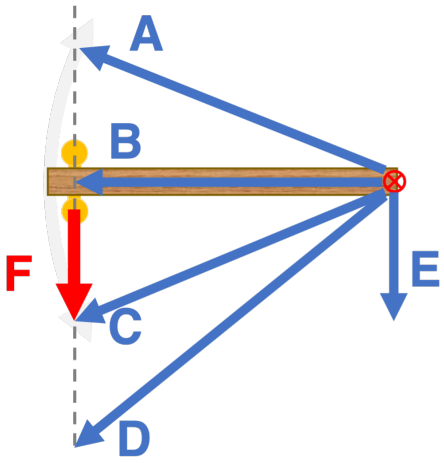
Question 39

Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



Question 40

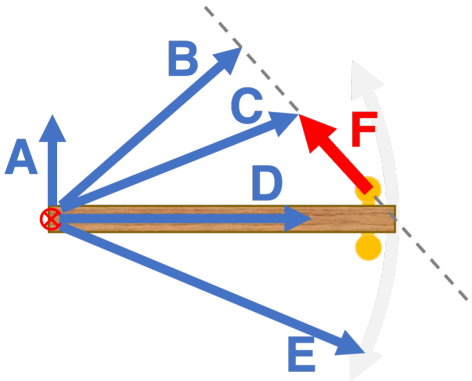
Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



Question Group 12

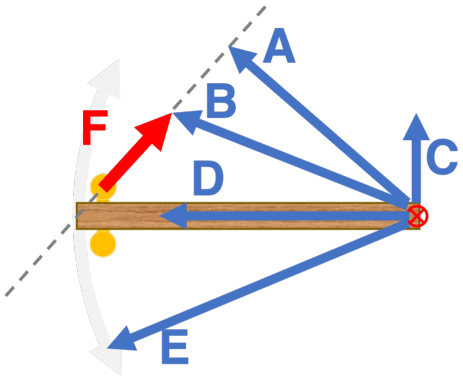
Question 41

Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



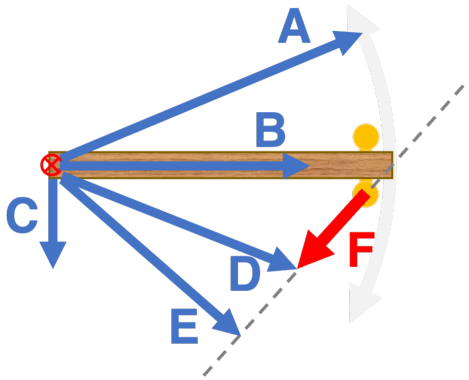
Question 42

Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



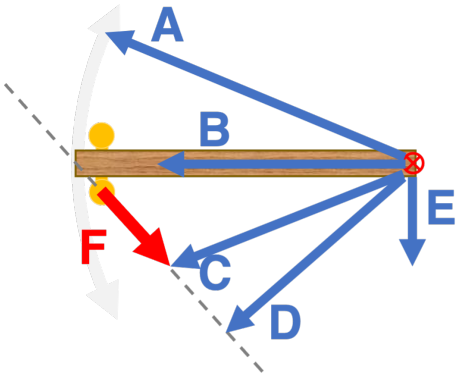
Question 43

Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



Question 44

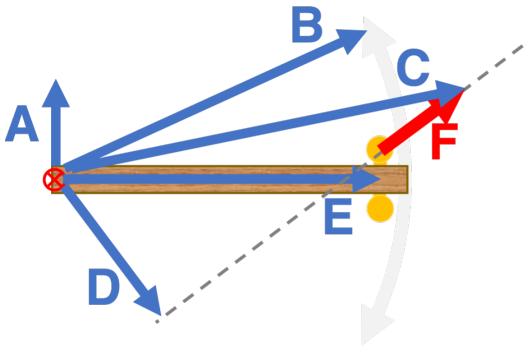
Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



Question Group 13

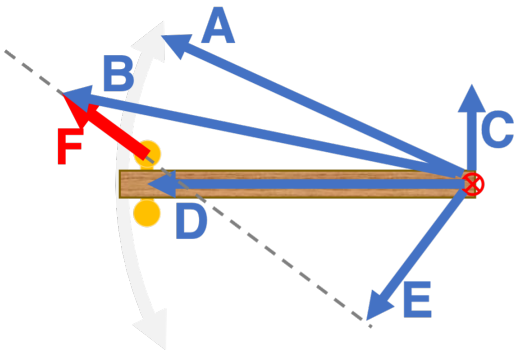
Question 45

Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



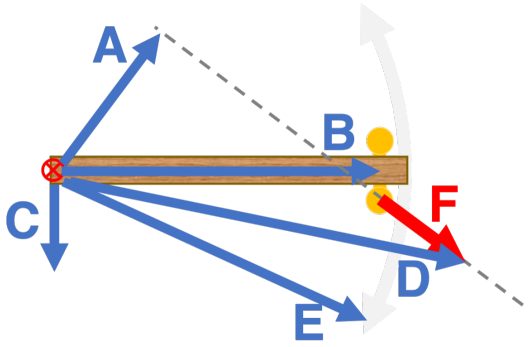
Question 46

Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



Question 47

Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?



Question 48

Anita Getin pulls on the handle of a door to swing it about its hinge (⊗). The direction of the force vector is shown in **red** (and labeled **F**). The torque (τ) resulting from this force is calculated using the equation $\tau = a*F$ where **a** is the lever arm (a.k.a. moment arm). Which of the **blue arrows** - labeled A, B, C, D, and E - represent the lever arm?