

Soalan Subjektif

8.1

Daya Force

Buku Teks: m.s. 168 – 175

1. Padankan situasi di bawah dengan daya yang betul. **TF 2**

Match the situations below with the correct force.

(a) Ski meluncur di atas salji.
Skis sliding against snow.

(b) Sampan berada di atas air.
Boat floats in the water.

(c) Gelas jatuh ke lantai.
A glass falls to the floor.

(d) Gerakan melantun selepas lompatan pertama dalam terjun lelabah.
Bouncy motion after the initial jump in bungee jumping.

(i) Daya graviti
Gravitational force

(ii) Daya elastik
Elastic force

(iii) Daya geseran
Frictional force

(iv) Daya apungan
Buoyant force

Jenis-jenis Daya Types of Forces

2. Berikut ialah jenis-jenis daya: **TF 1**
The following are types of forces:

1. Bou _____ force
2. Elas _____ force
3. Fric _____ force
4. Gravi _____ force
5. Nor _____ force
6. Wei _____

ght

tational

mal

tic

tion

yant

3. Nyatakan sama ada pernyataan di bawah BENAR atau PALSU. **TP 2**
 State whether the statements below are TRUE or FALSE.

- (a) Daya ialah tarikan atau tolakan yang dikenakan ke atas suatu objek.
A force is a push or a pull that is applied to an object.
- (b) Daya mempunyai magnitud dan arah.
A force has magnitude and direction.
- (c) Bumi kita dipengaruhi oleh daya graviti Matahari.
Our Earth is influenced by the gravitational force of the Sun.
- (d) Sebuah pasu yang diletakkan di atas meja, kekal di situ kerana mengalami daya tarikan graviti dan daya apungan dalam arah bertentangan.
A vase that is put on a table remains there because it experienced gravitational force and buoyant force in an opposite direction.
- (e) Berat sesuatu objek ialah daya tarikan graviti terhadap objek tersebut.
The weight of an object is the gravitational force on the object.
- (f) Objek yang mempunyai jisim 1300 g mempunyai berat 13 N.
An object that has a mass of 1300 g has a weight of 13 N.

Pasangan Daya Tindakan-Daya Tindak Balas Pair of Action-Reaction force

4. Rajah 1(a) menunjukkan seekor burung yang sedang terbang dan Rajah 1(b) menunjukkan sebuah kereta yang sedang dipandu oleh Ali.
Diagram 1(a) below shows a bird is flying and Diagram 1(b) shows a car is driven by Ali.



(a)



(b)

Rajah 1 / Diagram 1

- (a) Berdasarkan Rajah 1(a), tunjukkan arah daya tindakan dan daya tindak balas yang terjadi ketika burung sedang menggunakan sayapnya untuk terbang. Jelaskan jawapan anda. **TP 4**
Based on Diagram 1(a), show the direction of the action force and the reaction force that happen when the bird is using its wings to fly. Explain your answer.

KBAT Menganalisis

The wings of the bird push air downwards, while the air pushes the bird upwards. This pair of action - reaction force is part of forces that allows bird to fly.

reaction

upwards

fly

downwards

- (b) Berdasarkan Rajah 1(b) jelaskan apa yang akan terjadi antara tayar kereta yang sedang bergerak dan jalan raya. **TP2**

Based on Diagram 1(b), describe what happens between the tyres of the car and the road when the car is moving. **KBAT** Mengaplikasi

As the tyres _____, they grip the road and push the road _____. This is called an action force. Meanwhile, the road is also pushing the tyres _____. This action-reaction force allows the car to _____ along the road.

move

forward

spin

backwards

- (c) Ketika Ali sedang memandu, tiba-tiba burung tersebut telah melanggar cermin hadapan keretanya. Berdasarkan Hukum Newton Ketiga, daya yang manakah lebih besar; daya yang bertindak ke atas burung atau daya yang bertindak ke atas cermin kereta Ali? Jelaskan jawapan anda. **TP3**

While Ali is driving, the bird suddenly strikes his windshield. Based on the Newton's Third Law, which force is bigger; the force on the bird or the force on Ali's windshield? Explain your answer. **KBAT** Menilai

According to the Newton's Third Law, for every _____ force, there is a reaction force that is _____ in magnitude but _____ direction. Therefore, the two forces resulted from the interaction between the bird and the _____ is equal.

equal

windshield

action

opposite

5. Isi tempat kosong dengan jawapan yang betul. **TP2**

Fill in the blanks with the correct answers.

- (a) Berat suatu barang yang berjisim 10 kg ialah _____.

The weight of an item that has a mass of 10 kg is _____.

- (b) Sebuah kereta mempunyai jisim 900 kg. Beratnya ialah _____.

A car has a mass of 900 kg. Its weight is _____.

- (c) Di Bumi, apabila alat penimbang menunjukkan berat 360 N, jisim barang tersebut ialah _____.

On Earth, when a scale shows a weight of 360 N, the mass of the item is _____.

- (d) Seorang perenang yang terapung di atas air mengalami tindakan daya _____ yang dikenali sebagai _____. Daya _____ juga akan bertindak balas dari arah yang bertentangan.

A swimmer who is floating in the water is experiencing a _____ force known as _____. A _____ force will also act on the swimmer from an opposite direction.

- (e) Daya boleh diukur menggunakan _____.

A force can be measured using a _____.

TP2 Menguasai

Belum menguasai

TP3 Menguasai

Belum menguasai

TP4 Menguasai

Belum menguasai

Ketumpatan dan Kesan Apungan
Density and Buoyant Effect

1. Berikut ialah dua pemerhatian daripada satu eksperimen.
The following are two observations from an experiment.

Pemerhatian 1: Apabila sebiji batu dijatuhkan ke dalam sebuah bikar berisi air, batu tersebut tenggelam.

Observation 1: When a rock was dropped into a beaker filled with water, the rock sank.

Pemerhatian 2: Apabila sebuah bongkah kayu dijatuhkan ke dalam bikar berisi air, bongkah kayu tersebut terapung.

Observation 2: When a wooden block was dropped into a beaker filled with water, the wooden block floated.

- (a) Apakah yang boleh anda simpulkan daripada pemerhatian tersebut mengenai ketumpatan batu dan bongkah kayu berbanding air? **TP 4**
What can you conclude from the observation about the density of the rock and the wooden block compared to the water?

The _____ is denser than water. The _____ is less dense than water.
_____ wooden block _____ rock

- (b) Jelaskan mengapa batu tenggelam dan bongkah kayu terapung. **TP 4**
Explain why the rock sank and the wooden block floated.

The _____ sinks because it is denser than water, which the buoyant force that acts on it is _____ than its weight. The _____ float because it is less denser than water, which the buoyant force that acts on it is _____ that its weight.

_____ greater _____ rock _____ wooden block _____ smaller

- (c) Berikan dua contoh bahan bagi setiap situasi berikut. **TP 3**
Give two examples of substances for each of the following situation.

Lebih tumpat daripada air / Denser than water :

_____, _____

Kurang tumpat daripada air / Less dense than water :

_____, _____

- (d) Jika berat batu ketika diukur di udara menggunakan neraca spring ialah 10 N dan berat batu di dalam air ialah 7 N, berapakah daya apungan yang bertindak balas ke atas batu? **TP 3**
If the weight of the rock when measured in the air using the spring balance is 10 N and the weight of the rock in the water is 7 N, what is the buoyant force that acts on the rock?