Gravitational Field Strength

Activity 1 – Ranking Tasks

Question Group 1 Question 1







Question Group 2 Question 4







Question Group 3 Question 7







Question Group 4 Question 10







Question Group 5 Question 13







Question Group 6 Question 16







Activity 2 – Case Study: A versus B

Question Group 1 Question 1

Two locations – A and B - are shown. Each has a different set of gravitational conditions. The relative planet mass (expressed in terms of M) and the relative distance of each location from the planet's center (expressed in terms of R) are shown.



The gravitational field strength is greatest at location _____ ...

... by a factor of _____.

- 2
- 4

8

16



The gravitational field strength is greatest at location
by a factor of
2
4
8
16



The gravitational field strength is greatest at location
by a factor of
2
3
4
6
9

Question Group 2 Question 4

Two locations – A and B - are shown. Each has a different set of gravitational conditions. The relative planet mass (expressed in terms of M) and the relative distance of each location from the planet's center (expressed in terms of R) are shown.



The gravitational field strength is greatest at location ______ by a factor of ______.

- 2
- 3
- 4
- 6
- 9



The gravitational field strength is greatest at location by a factor of
3
6
9
18
27



The gravitational field str	ength is greatest at location	
by a factor of		

Question Group 3 Question 7

Two locations – A and B - are shown. Each has a different set of gravitational conditions. The relative planet mass (expressed in terms of M) and the relative distance of each location from the planet's center (expressed in terms of R) are shown.



The gravitational field strength is greatest at location _____ ...

- ... by a factor of _____.
- 2
- 4
- 8

Two locations – A and B - are shown. Each has a different set of gravitational conditions. The relative planet mass (expressed in terms of M) and the relative distance of each location from the planet's center (expressed in terms of R) are shown.



The gravitational field strength is greatest at location ______ ...

- ... by a factor of _____.
- 2
- 4
- 8



The gravitational field strength is greatest at location
by a factor of
2
4

- 5
- 8

Question Group 4 Question 10

Two locations – A and B - are shown. Each has a different set of gravitational conditions. The relative planet mass (expressed in terms of M) and the relative distance of each location from the planet's center (expressed in terms of R) are shown.



The gravitational field strength is greatest at location ______...

- ... by a factor of _____.
- 3
- 6
- 9
- 12



The gravitational field strength is greatest at location
by a factor of
2
3
6
9
12
18



- 3
- 6
- 9
- 18
- 27

Question Group 5 Question 13



The gravitational field strength is greatest at location
by a factor of
4/3
3/2
2
3
4
9/2
12



The gravitational field strength is greatest at location
by a factor of
4/3
3/2
2
3
4
9/2
12

Question Group 6 Question 15



The gravitational field strength is greatest at location
by a factor of
4/3
3/2
2
3
4
9/2
12



The gravitational field strength is greatest at location
by a factor of
4/3
3/2
2
3
4
9/2
12

Activity 3: Value of g

Question Group 1 Question 1

The value of the gravitational field strength on the surface of a planet (location X) is 10.0 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) at location Y.



The value of the gravitational field strength on the surface of a planet (location X) is 9.0 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) at location Y.



The value of the gravitational field strength on the surface of a planet (location X) is 8.0 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) at location Y.



Question Group 2 Question 4

The value of the gravitational field strength on the surface of a planet (location X) is 10.0 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) at location Y.



The value of the gravitational field strength on the surface of a planet (location X) is 9.0 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) at location Y.



The value of the gravitational field strength on the surface of a planet (location X) is 8.0 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) at location Y.



Question Group 3 Question 7

The value of the gravitational field strength on the surface of a planet (location X) is 36.0 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) at location Y.



The value of the gravitational field strength on the surface of a planet (location X) is 16.0 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) at location Y.



The value of the gravitational field strength on the surface of a planet (location X) is 27.0 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) at location Y.



Question Group 4 Question 10

The value of the gravitational field strength at location **X** is 2.35 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) on the surface of the planet (location **Y**).



The value of the gravitational field strength at location **X** is 2.12 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) on the surface of the planet (location **Y**).



The value of the gravitational field strength at location **X** is 1.96 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) on the surface of the planet (location **Y**).



Question Group 5 Question 13

The value of the gravitational field strength at location **X** is 3.86 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) on the surface of the planet (location **Y**).



The value of the gravitational field strength at location **X** is 1.72 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) on the surface of the planet (location **Y**).



The value of the gravitational field strength at location **X** is 2.95 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) on the surface of the planet (location **Y**).



Question Group 6 Question 16

The value of the gravitational field strength at location X is 1.45 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) location Y.



The value of the gravitational field strength at location X is 1.05 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) location Y.



The value of the gravitational field strength on the surface of a planet (location X) is 1.72 N/kg. Determine the gravitational field strength (in N/kg, accurate to the second decimal place) at location Y.

