

# Informatics, Space, Innovation

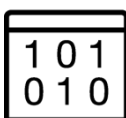
(Grade 9, Questions/Answers)

All time values in Book of Problems are indicated as UTC (Coordinated Universal Time)

Grade 9

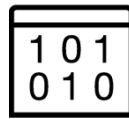
I-9.1 .....[9.1](#)  
 I-9.2 .....[9.2](#)  
 I-9.3 .....[9.3](#)  
 I-9.4 .....[9.4](#)  
 I-9.5 .....[9.5](#)  
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 I-9.10 .....[9.10](#)

Answers ..... [A](#)  
 Information source ..... [Info](#)  
 Vocabulary ..... [V](#)

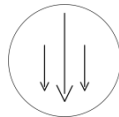


# Grade 9

Telescope	Moon	Gravity	ISRO	Distance	Astronomy	STEM
Astronaut	Mars	Atmosphere	CNES	Velocity	Geography	
Robot	Planet	Frequency	NASA	Time	Mathematics	
Rocket	Sun	Radiation	ESA	Period	Physics	
Shuttle	Comet	Wave	Roscosmos	Angle	Chemistry	
ISS	Planet	Magnetism	JAXA	Coordinate	Biology	
Cubesat	Sun	Temperature	CNSA	Trajectory	Astronomy	
Satellite	Comet	Mass	ISRO	Orbit	Geography	
Rover	Asteroids	Gravity	CNES	Velocity	Mathematics	
Probe	Meteorite	Atmosphere	DLR	Time	Physics	



I-9.1 – Problem No. 11



Telescope	Moon	Gravity	ISRO	Distance	Astronomy
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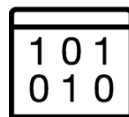
Write short **real space story** dealing with topics presented in the above coloured cells.

Insert **open source picture** in the right side of the text.

For more information visit this [webpage](#). (Fill in corresponding hyperlink).

Question (A):

Write the text of question in bold font.



I-9.2 – Problem No. 12



Astronaut	Mars	Atmosphere	CNES	Velocity	Geography
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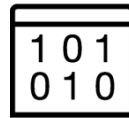
Write short **real space story** dealing with topics presented in the above coloured cells.

Insert **open source picture** in the left side of the text.

For more information visit this [webpage](#). (Fill in corresponding hyperlink).

Question (A):

Write the text of question in bold font.



I-9.3 – Problem No. 13



Robot	Planet	Frequency	NASA	Time	Mathematics
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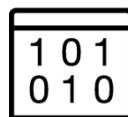
Write short **real space story** dealing with topics presented in the above coloured cells.

Insert **open source picture** in the right side of the text.

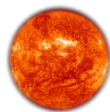
For more information visit this [webpage](#). (Fill in corresponding hyperlink).

Question (A):

Write the text of question in bold font.



I-9.4 – Problem No. 14



Rocket	Sun	Radiation	ESA	Period	Physics
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Write short **real space story** dealing with topics presented in the above coloured cells.

Insert **open source picture** in the left side of the text.

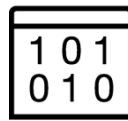
For more information visit this [webpage](#). (Fill in corresponding hyperlink).

Question (A):

Write the text of question in bold font.

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I-9.5 – Problem No. 15



Shuttle	Comet	Wave	Roscosmos	Angle	Chemistry
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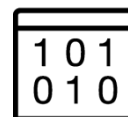
Write short **real space story** dealing with topics presented in the above coloured cells.

Insert **open source picture** in the right side of the text.

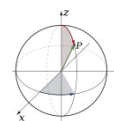
For more information visit this [webpage](#). (*Fill in corresponding hyperlink*).

Question (A):

Write the text of question in bold font.



I-9.6 – Problem No. 16



ISS	Planet	Magnetism	JAXA	Coordinate	Biology
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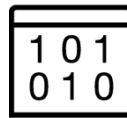
Write short **real space story** dealing with topics presented in the above coloured cells.

Insert **open source picture** in the left side of the text.

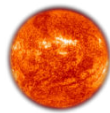
For more information visit this [webpage](#). (*Fill in corresponding hyperlink*).

Question (A):

Write the text of question in bold font.



I-9.7 – Problem No. 17



Cubesat	Sun	Temperature	CNSA	Trajectory	Astronomy
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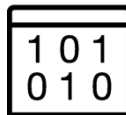
Write short **real space story** dealing with topics presented in the above coloured cells.

Insert **open source picture** in the right side of the text.

For more information visit this [webpage](#). (Fill in corresponding hyperlink).

Question (A):

Write the text of question in bold font.



I-9.8 – Problem No. 18



Satellite	Comet	Mass	ISRO	Orbit	Geography
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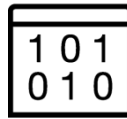
Write short **real space story** dealing with topics presented in the above coloured cells.

Insert **open source picture** in the left side of the text.

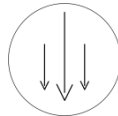
For more information visit this [webpage](#). (Fill in corresponding hyperlink).

Question (A):

Write the text of question in bold font.



I-9.9 – Problem No. 19



Rover	Asteroide	Gravity	CNES	Velocity	Mathematics
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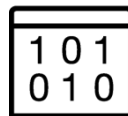
Write short **real space story** dealing with topics presented in the above coloured cells.

Insert **open source picture** in the right side of the text.

For more information visit this [webpage](#). (Fill in corresponding hyperlink).

Question (A):

Write the text of question in bold font.



I-9.10 – Problem No. 20



Probe	Meteorite	Atmosphere	DLR	Time	Physics
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Write short **real space story** dealing with topics presented in the above coloured cells.

Insert **open source picture** in the left side of the text.

For more information visit this [webpage](#). (Fill in corresponding hyperlink).

Question (A):

Write the text of question in bold font.

SPACEOLYMP

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## Space calendar

<http://www.spacecalendar.com> <http://spaceflightnow.com/launch-schedule/>

January 8 (YEAR)

<http://www.astronautix.com/j/january08.html>

Write very brief message about space-related event of this day in history, specify a year.

January 10 (YEAR)

<http://www.astronautix.com/j/january10.html>

Write very brief message about space-related event of this day in history, specify a year.

March 2 (YEAR)

<http://www.astronautix.com/m/march02.html>

Write very brief message about space-related event of this day in history, specify a year.

April 23 (YEAR)

<http://www.astronautix.com/a/april23.html>

Write very brief message about space-related event of this day in history, specify a year.

June 14 (YEAR)

<http://www.astronautix.com/j/june14.html>

Write very brief message about space-related event of this day in history, specify a year.

August 5 (YEAR)

<http://www.astronautix.com/a/augusto5.html>

Write very brief message about space-related event of this day in history, specify a year.

September 26 (YEAR)

<http://www.astronautix.com/s/september26.html>

Write very brief message about space-related event of this day in history, specify a year.

September 28 (YEAR)

<http://www.astronautix.com/s/september28.html>

Write very brief message about space-related event of this day in history, specify a year.

November 17 (YEAR)

<http://www.astronautix.com/n/november17.html>

Write very brief message about space-related event of this day in history, specify a year.

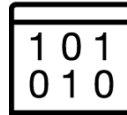
November 19 (YEAR)

<http://www.astronautix.com/n/november19.html>

Write very brief message about space-related event of this day in history, specify a year.



## ANSWERS



### Grade 9

#### I-9.1 (Q)

[Return to Content](#)

Problem solution comment.

Answer: write in the answer.

#### I-9.2 (Q)

[Return to Content](#)

Problem solution comment.

Answer: write in the answer.

#### I-9.3 (Q)

[Return to Content](#)

Problem solution comment.

Answer: write in the answer.

#### I-9.4 (Q)

[Return to Content](#)

Problem solution comment.

Answer: write in the answer.

#### I-9.5 (Q)

[Return to Content](#)

Problem solution comment.

Answer: write in the answer.

#### I-9.6 (Q)

[Return to Content](#)

Problem solution comment.

Answer: write in the answer.

#### I-9.7 (Q)

[Return to Content](#)

Problem solution comment.

Answer: write in the answer.

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**I-9.8 (Q)**

[Return to Content](#)

**Problem solution comment.**

**Answer:** write in the answer.

**I-9.9 (Q)**

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**Problem solution comment.**

**Answer:** write in the answer.

**I-9.10 (Q)**

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**Problem solution comment.**

**Answer:** write in the answer.

## INFORMATION SOURCE

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ESA - [http://www.esa.int/ESA/Our\\_Missions](http://www.esa.int/ESA/Our_Missions)

NASA - <https://www.nasa.gov/missions>

DLR - <http://www.dlr.de/dlr/en/desktopdefault.aspx/tabid-10012/#/Missionen/Start/Feature>

JAXA - <http://global.jaxa.jp/projects/>

CNSA - <http://www.cnsa.gov.cn/n6443408/index.html>

CNES - [https://cnes.fr/en/fiches\\_mission\\_alpha](https://cnes.fr/en/fiches_mission_alpha)

ISRO - <http://www.isro.gov.in/missions-o>

Roscosmos - <http://en.roscosmos.ru/>

[http://hpde.gsfc.nasa.gov/Borne\\_Informatics.ppt](http://hpde.gsfc.nasa.gov/Borne_Informatics.ppt)

<http://serc.carleton.edu/usingdata/index.html>

<http://d32ogogmya1dw8.cloudfront.net/files/usingdata/UsingData.pdf>

<http://www.dlese.org/library/index.jsp>

<http://www.nasa.gov/audience/foreducators/stem-on-station/lessons>

[http://www.nasa.gov/audience/foreducators/k-4/features/materials\\_archive\\_1.html](http://www.nasa.gov/audience/foreducators/k-4/features/materials_archive_1.html)

<http://mynasadata.larc.nasa.gov/educators/>

Information on Launch vehicles, Satellites, Space Shuttle and Astronautics:

<http://space.skyrocket.de/index.html>

**VOCABULARY**[Return to Content](#)**Telescope**

Earth or Space based instrument for observation of remote objects.

**Astronaut**

Person trained for human spaceflight (as well cosmonaut or taikonaut).

**Robot**

Mechanical apparatus capable to perform programmed physical tasks in space.

**Rocket**

Flying space device powered by the reactive force.

**Shuttle**

Reusable spaceplane for Earth orbiting or human/cargo delivery to ISS.

**ISS**

Earth's largest artificial satellite - International Space Station.

**Cubesat**

Earth's artificial cube shaped satellite, dimensions 10×10×10 cm, mass – 1 kg.

**Satellite**

Artificial object launched by human efforts and orbiting any space body.

**Rover**

Vehicle designed to explore surface of any space body.

**Probe**

Automatic spacecraft exploring bodies of Solar system.

**Earth**

Third planet from the Sun and fifth largest planet of Solar system.

**Moon**

Earth's natural satellite.

**Mars**

Fourth planet from the Sun and seventh largest planet of Solar system.

**Planet**

Space body revolving around a star (including the Sun).

**Sun**

Earth's closest star.

**Comet**

Small icy space body (cometoid), when passing close to the Sun displaying coma or tail.

**Asteroid**

Minor planet (planetoid) orbiting the Sun in elliptical orbit.

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Meteorite

Debris from space object (meteoroid) survived the passage through atmosphere.

Temperature

Object's (space body) warmth.

Mass

Quantity of matter.

Gravity

Interaction between material bodies depending on their mass.

Atmosphere

Gas layer surrounding space body of sufficient mass.

Frequency

Event recurrence per unit of time.

Radiation

Spontaneous decay of atomic nuclei.

Wave

Energy transfer in space and time.

Magnetism

Magnetic interaction occurring between the moving electric charges.

NASA

National Aeronautics and Space Administration – governmental agency of USA.

ESA

European Space Agency – intergovernmental space exploration organisation.

Roscosmos

Roscosmos State Corporation for Space Activities – governmental body of Russia.

JAXA

Japan's National Aero-space Agency - national agency of Japan.

CNSA

China National Space Administration - national agency of China.

ISRO

Indian Space research Organisation – governmental agency of India.

CNES

National Center of Space Research - governmental agency of France.

DLR

German Aerospace Center – national center of Germany.

Time

Duration of object (space body) existence.

**Period**

Time elapsed for one rotation of object (space body) around its axis or other space body.

**Angle**

Figure (area) formed by two rays sharing the common endpoint.

**Coordinate**

Object's (space body) position in plane or space.

**Trajectory**

Path that moving object (space body) follows through space.

**Orbit**

Curved path of moving object (space body) around other object (space body).

**Distance**

Length (interstice) between objects (space body) in plane or space.

**Velocity**

Completed distance of object (space body) per unit of time.

**Mathematics**

Science of structures, variations and spatial patterns.

**Physics**

Science of all forms of matter.

**Chemistry**

Science of chemical elements and nature of materials.

**Informatics**

Science of information processing and storage, the use of computers.

**Biology**

Science of life and living organisms.

**Astronomy**

Science of celestial objects and processes outside the atmosphere of Earth.

**Geography**

Science of the lands, the features, the inhabitants and the phenomena of Earth.

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