Name: _____ Group: _____ Date: _____

ST chapter only

Checkup • Chapter 9

1 Observations of the sky

(pp. 274–282)

1. Certain astronomical phenomena can be seen with the naked eye while others must be observed with instruments. Which of the following phenomena can be observed with the naked eye?

- ☐ a lunar eclipse
- ☐ the Great Red Spot of Jupiter
- ☐ a meteor crashing on Mars
- ☐ the movement of the stars in the sky
- ☐ Saturn's rings
- ☐ day and night on Earth

2. Name three instruments used to observe the night sky.

- _____
- _____
- _____

3. Which five planets were discovered through visual observation?

- _____ • _____ • _____
- _____ • _____

4. Which two planets were discovered thanks to either the refracting telescope or the reflecting telescope?

- _____ • _____

5. Define the terms *astronomical unit* and *light year*.

Astronomical unit: _____

_____

_____

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Light year: _____

_____

_____

6. What is the speed of light (km/s)?

_____

_____

_____

7. The kilometre, the astronomical unit and the light year are three units of measurement used to calculate distances. Which would be used to calculate each of the following?

a) the distance between Jupiter and Mercury _____

b) the distance between the Sun and the star Rigel _____

c) the distance between Earth and the Moon _____

d) the distance between Gaspé and Rouyn-Noranda _____

e) the distance between the Milky Way and Andromeda _____

8. On April 3, 2024, Earth and Jupiter will be respectively 1.0 AU and 5.0 AU from the Sun.

a) How much further will Jupiter be from the Sun than Earth? _____

b) Is this data sufficient to calculate the distance between Earth and Jupiter on that date? Use a diagram to explain your answer.

_____

_____

_____

_____

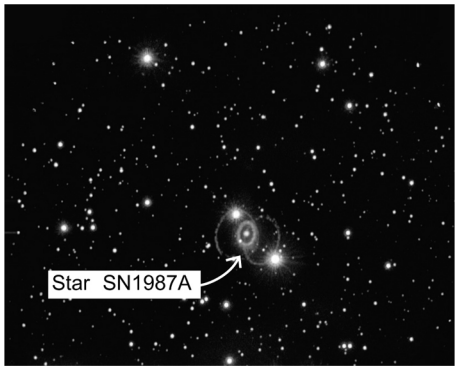
_____

_____

c) On that date, how many kilometres will separate Jupiter from the Sun?

_____

9. In 1987 an explosion of the SN1987A star was observed. It was located 170 000 ly away from our planet.



a) How long ago did this explosion occur? Explain your answer.

_____

_____

_____

_____

_____

_____

_____

b) How many kilometres separated Earth and SN1987A when it exploded? Show your calculations.

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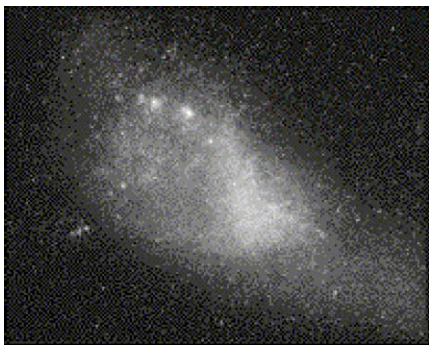
10. The Small Magellanic Cloud is a neighbouring galaxy. It is located about 200 000 ly away. Convert this distance to kilometres.



2 The Earth in the Universe

(pp. 283–292)

11. The Sun is a heat and light source for Earth and the entire solar system. Is the Sun a star? Explain your answer.

12. For a long time, humans thought all celestial bodies revolved around Earth. We now know that is not the case. There is only one celestial body orbiting Earth.

a) What is it called? _____

b) What is its average distance from Earth? _____

13. How much time elapses between two full moons? _____

14. What phenomenon is at the source of the Sun's energy?

15. How many times is the Sun's diameter greater than Earth's?

16. Which planets in our solar system do not possess any known natural satellites?

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17. "My very eager mother just served us noodles" is a sentence used to remember the names and order of the planets. The first letter of each word corresponds to the first letter of each planet.

a) Identify the planets corresponding to the first letter of each word in the sentence.

M _____ **V** _____ **E** _____

M _____ **J** _____ **S** _____

U _____ **N** _____

b) Indicate the average distance of each planet from the Sun.

_____ _____

_____ _____

_____ _____

_____ _____

c) Identify the three dwarf planets and indicate their average distance from the Sun.

_____ _____ _____

_____ _____ _____

18. A planet in our solar system is located at 4 500 000 000 km from the Sun.

a) What is the distance in astronomical units? _____

b) Identify the planet. _____

19. Planets with a rocky surface, such as Earth, are also called *terrestrial planets*.

a) Which planets in our solar system are terrestrial planets? _____

b) Which dwarf planet also has a rocky surface? _____

c) What is the surface composition of the other two dwarf planets? _____

_____

20. It is not likely that spacecraft would be able to land on a planet with an orbit beyond that of Mars. To explore such planets, spacecraft must do flybys.

a) Which planets have an orbit beyond that of Mars?

_____

b) Why are spacecraft not able to land on such planets?

_____

_____

21. Answer the following questions.

a) Why is the average surface temperature of Venus so high?

_____

_____

_____

b) Why does Mars appear red?

_____

_____

c) Why does Neptune appear blue?

_____

_____

22. What is the difference between a comet and an asteroid?

_____

_____

_____

_____

_____

23. The Milky Way is the name of our galaxy.

a) What is a galaxy?

_____

_____

b) How far away are we from the centre of our galaxy?

_____

c) Approximately how many stars are in the Milky Way?

_____

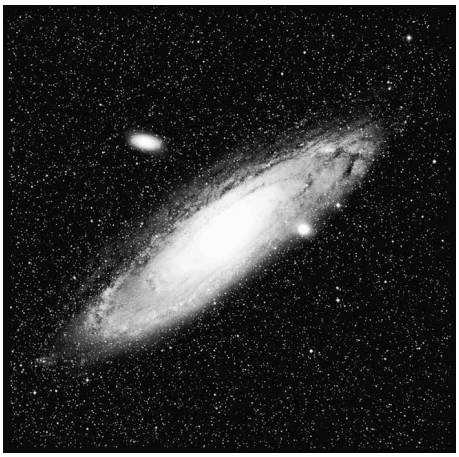
d) What is our closest neighbouring galaxy?

_____

e) How far away is it from our galaxy?

_____

24. The Andromeda galaxy is pictured at right.



a) Is it an elliptical, spiral or irregular galaxy?

_____

b) Is the Milky Way the same type of galaxy as Andromeda? If not, what type is it?

_____

_____

25. True or false?

TRUE	FALSE	
☐	☐	**a)** The Sun is located at the centre of the solar system.
☐	☐	**b)** The solar system is located at the centre of the Milky Way.
☐	☐	**c)** The Milky Way is at the centre of the Universe.