Astronomy: Earth and Beyond

Grade 6

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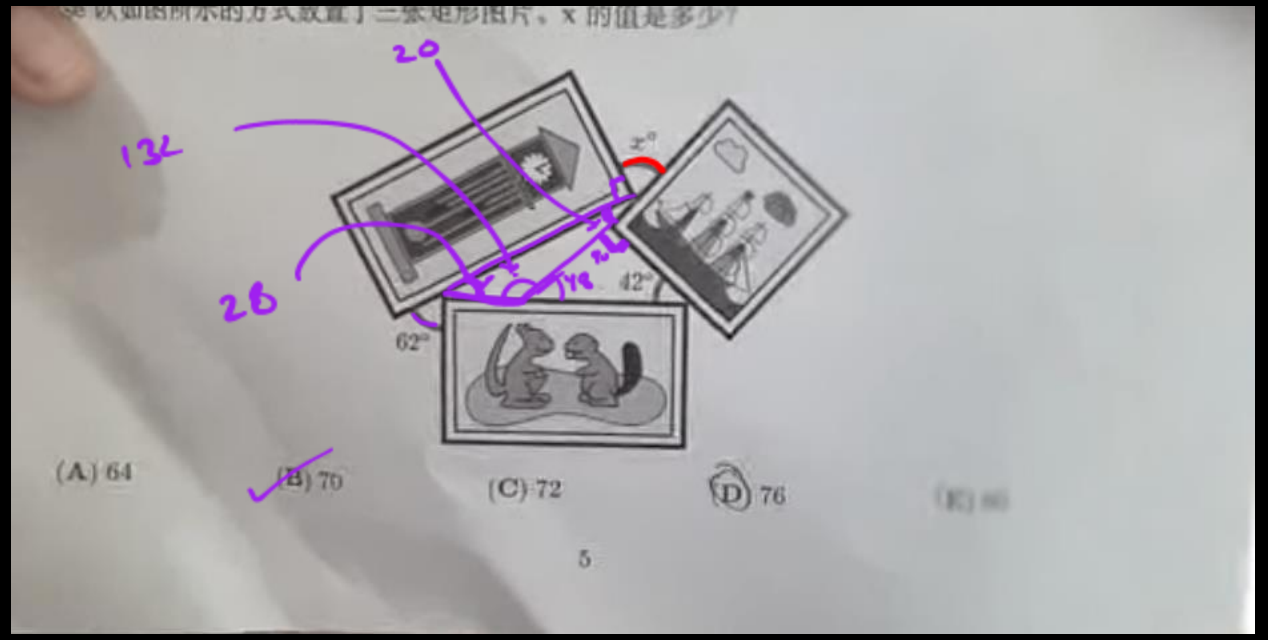
9999
0000

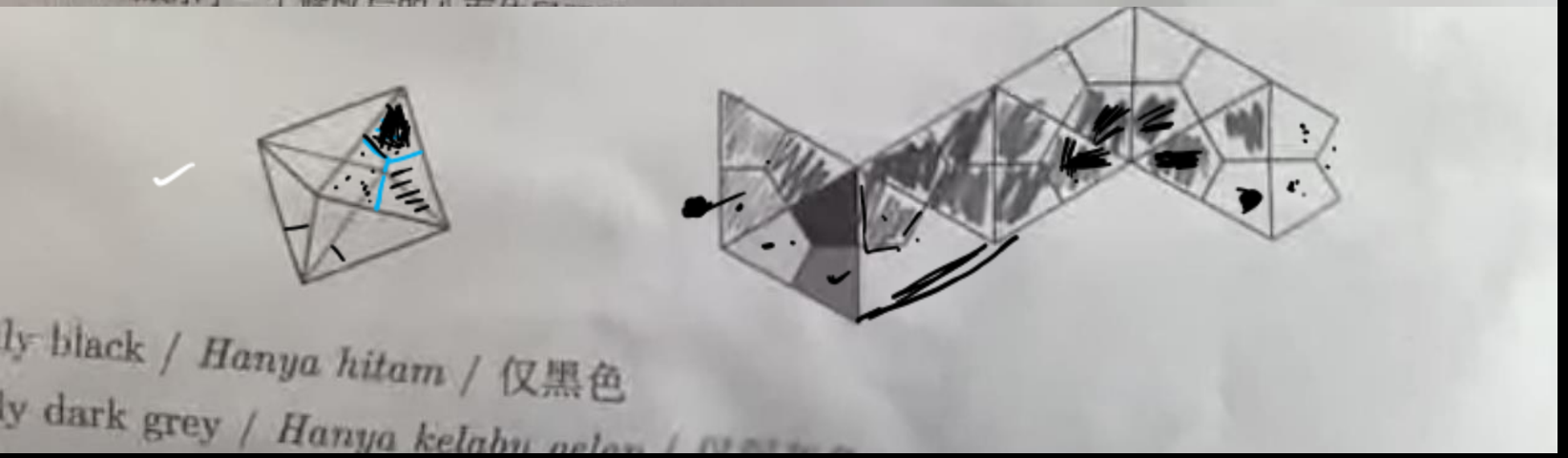
→ 2 8 15
→ 3 9 26
4 0 37



24. The right-hand figure below shows the adapted net of an octahedron. Each face of the octahedron is divided into three parts. The octahedron is coloured with the three colours black, dark grey and light grey in such a way that the parts that come out of the same vertex or out of an opposite vertex are the same colour. Which colour could the part marked with a dot be coloured with?

Rajah di sebelah kanan menunjukkan bentangan yang diubah suai bagi sebuah oktahedron. Setiap permukaan oktahedron dibahagikan kepada tiga bahagian. Oktahedron itu diwarnakan dengan tiga warna iaitu hitam, kelabu gelap, dan kelabu cerah, dengan syarat bahawa bahagian-bahagian yang berasal dari satu bucu yang sama atau berasal dari bucu yang bertentangan mempunyai warna yang sama. Warna apakah yang boleh digunakan untuk mewarnakan bahagian yang ditandakan dengan titik?

下图右侧展示了一个修改后的八面体[illegible]



ly black / *Hanya hitam* / 仅黑色

ly dark grey / *Hanya kelabu gelap* / [illegible]

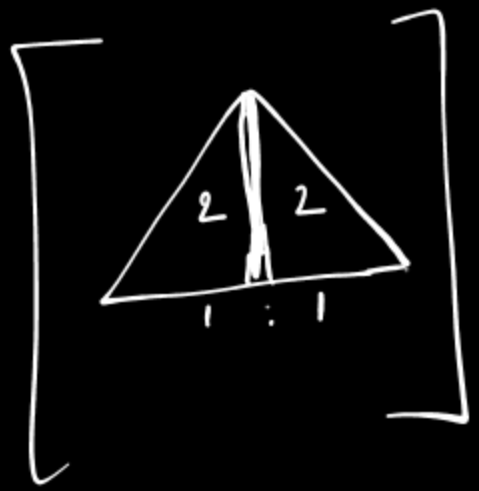
$BN = 2NC$

$AK = KD$

$\therefore \triangle CKD = 2$

$\therefore \triangle ABN = 6$

$\therefore$ **ABCD** $= ?$



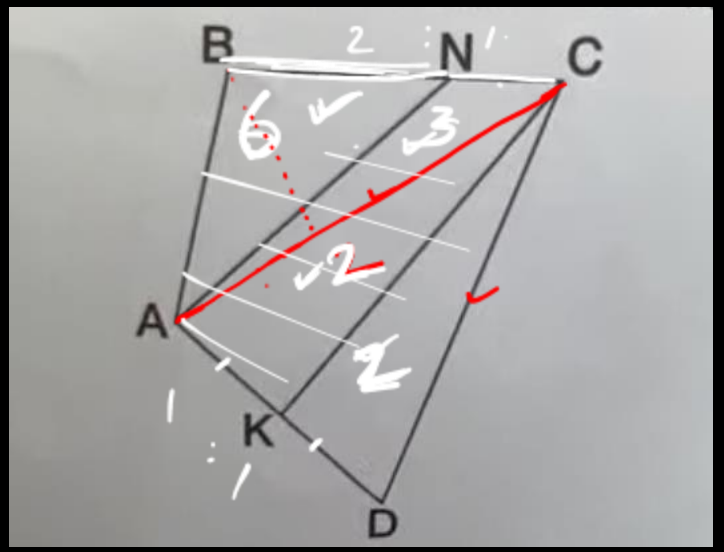
(A) 13

(B) 14

(C) 15

(D) 16

(E) 17



⇒ Mangalyaan

↓

ISRO

"Indian Space Research Organisation"

"Mars Orbiter Mission"

MOM

Mars ⟶ "Mangal" Grah

4th planet

⇒ Red Planet because of oxides of Iron.

Atmosphere → Very thin mainly CO_2.

~~Low~~ → weak gravitational pull.

→ No magnetic field.

Orbit and Rotation of Mars

→ It completes one rotation in 24.6 hours (1 sol) — solar day

↓

Very similar to earth 23.9 hrs.

→ Axis of rotation is also tilted just like earth.

Mars's tilt is 25°

Earth's tilt is 23.4°

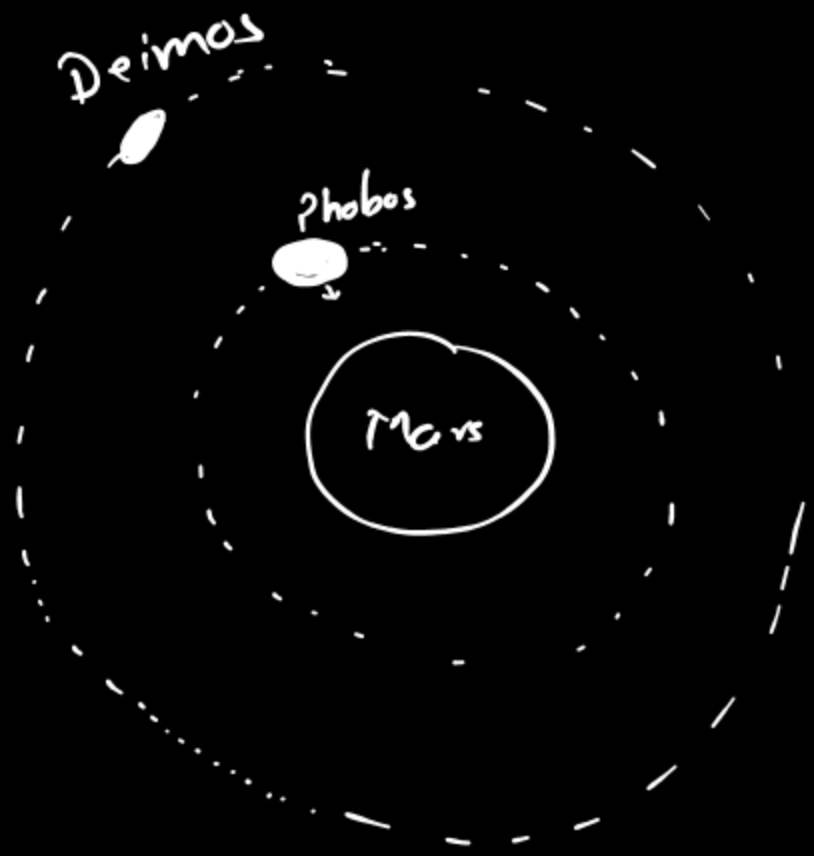
⇒ Mars also has distinct seasons like earth.

⇒ Length of season is variable due to long orbital period and more elliptical orbit around sun. than earth.

⇒ Orbital period of Mars is 669.6 sols (≈ 687 days)

Moons (Two)

- Phobos
- Deimos



→ They are small in size and potato shaped instead of spherical (as they don't have enough gravitation force)

→ Phobos is slow moving towards mars.

Light will crash into the mars in about 50 million years.

→ Mars has no ring.

→ Temperature range: -150 °C to 20°C

⇒ We are still looking for life on mars.

Perseverance → rover

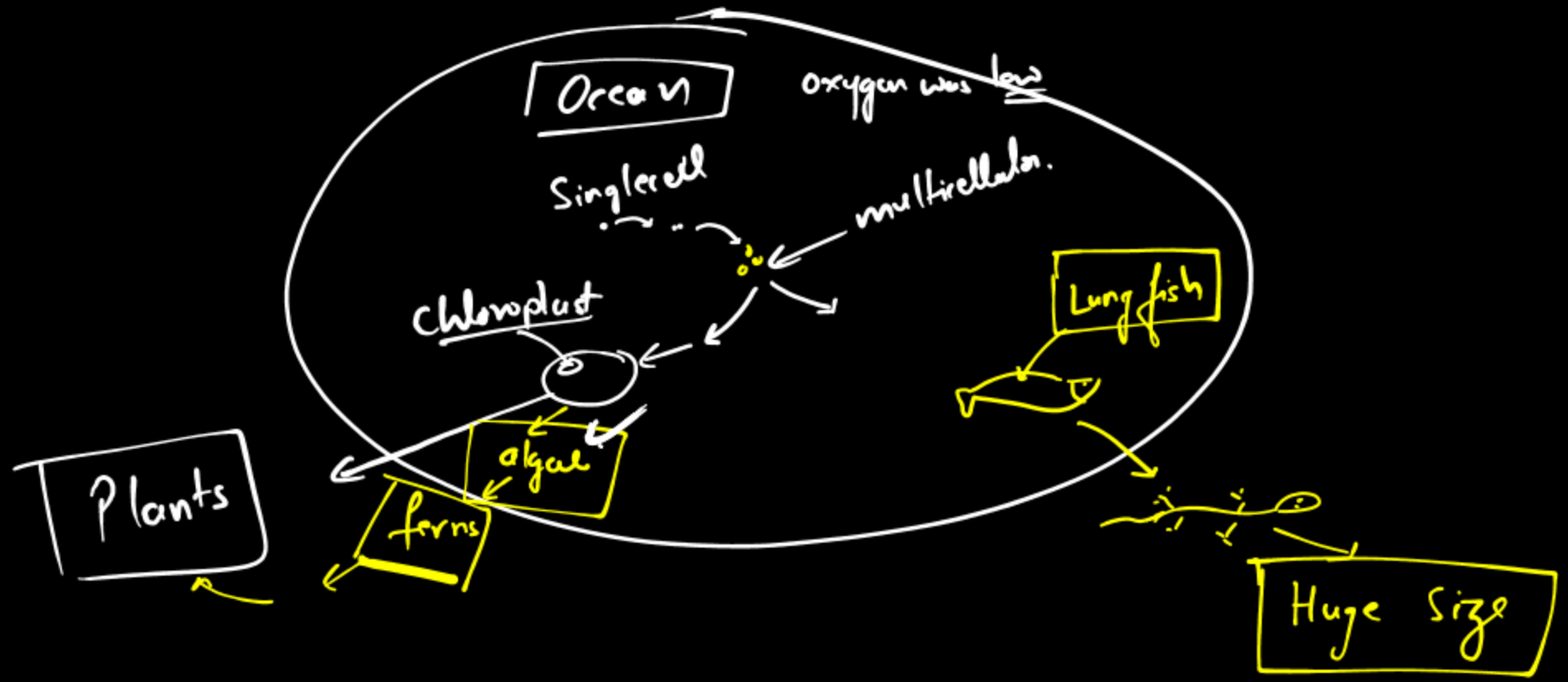
→ Ingenuity → Drone / Helicopter

→ July 30, 2020	2021 18th Feb
Launched	Landed

Landing Site : Jezero crater (once flooded with water)

Objective: To search ancient microbial life.

Evolution



Venus → CO_2 + H_2SO_4

Hottest

Sun → Our Star

→ Small star

→ Main sequence star

→ Source of energy : Nuclear fusion reaction

→ Primary fuel : Hydrogen

4.5 billion year →

~ 14.5 billion years

Today's ☉

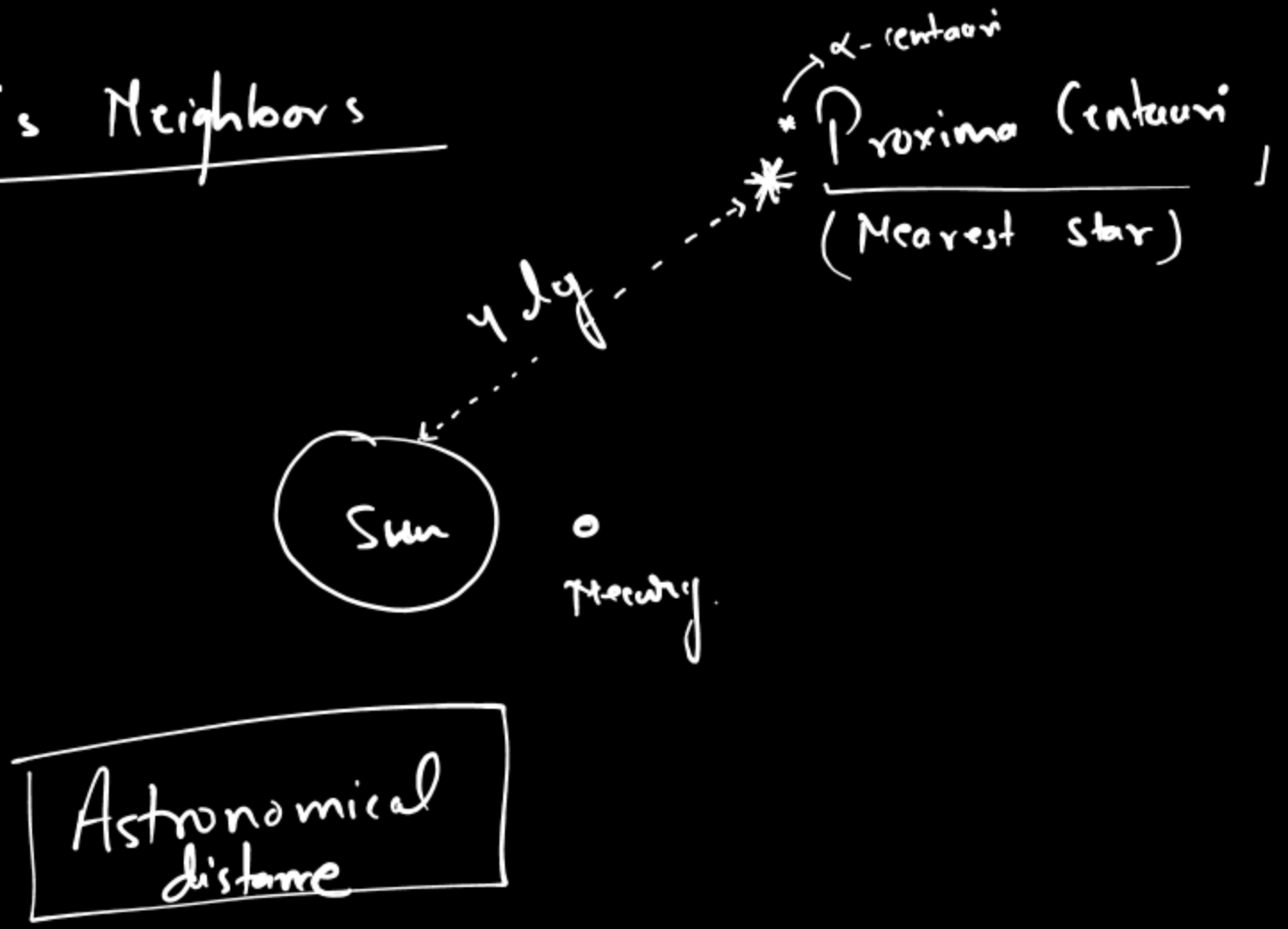
Red Giant

White dwarf

$\Rightarrow$

$$CO_2 + H_2O \xrightarrow[\text{Chlorophylls}]{\text{Sunlight}} C_6H_{12}O_6 + O_2 + H_2O$$

Sun's Neighbours



Astronomical distance

NASA's "Parker Solar Probe"

↓

"flying inside Sun's atmosphere (corona).

⇒ Study the working of Sun (Solar activities) like sunspot.

⇒ Study the temperature variance between surface and atmosphere.

Surface temp. of Sun is 4000 – 6000°C

temp. of Sun's atmosphere is 2-3 million °C.

India

ISRO's "Aditya L1 Solar Probe".

- ⇒ Coronal mass ejection.
- ⇒ Solar flares..

: Sunspots are areas that appear dark on the surface of sun.

=) They appear dark because they are cooler than its surrounding.

Solar Flares : Solar flares are sudden explosion of energy caused by reorganisation of magnetic field lines near sunspots..