

SAMPLE PAPER • 2026

Grade 10 paper

12

QUESTIONS

60

MINUTES

5

CHOICES EACH

INSTRUCTIONS

1. Time allowed: **60 minutes**.
2. No calculators or reference material of any kind.
3. There are **12 questions**. Each has five options, exactly one of which is correct.
4. Mark one answer only for each question. Every question carries equal weight, and nothing is deducted for a wrong answer — so a considered guess is always worth making.
5. The questions are in roughly increasing order of difficulty.
6. Questions 10, 11 and 12 are guided, and build on each other, so they are worth attempting even if the earlier questions did not go your way.

NAME

SCHOOL



1

A bar of chocolate is scored into a 4×6 grid of small squares. You break it up by snapping along the scored lines: each snap takes one piece and breaks it into two, and you are never allowed to stack pieces and snap through more than one at a time.

You keep going until all 24 squares are separated. How many snaps do you make?

A 12

B 20

C 23

D 24

E It depends on the order you snap in

2

You are playing with a square paper napkin that has an area of 32 square cm. You fold one corner over so that its tip lands exactly on the centre of the square.

Once the napkin is pressed flat, what is the area of the shape you now see from above?

A 20 cm^2 B 24 cm^2 C 26 cm^2 D 28 cm^2 E 30 cm^2

3

GEMS

My language app rewards me with a free gem on every 4th day of my streak, and a free gem on every 6th day. If a day is both a 4th and a 6th day, the app awards both gems. My streak lasts exactly 84 days.

How many free gems did I collect?

A 28

B 32

C 35

D 42

E 49



4

Which of these five numbers is the **second** largest?

[Hint: Wouldn't it be easier if they had something in common?]

A 2^{40}

B 3^{30}

C 4^{25}

D 5^{20}

E 6^{15}

5

A rectangle has perimeter 20 and area 23. How long is its diagonal?

A $\sqrt{23}$

B $3\sqrt{6}$

C 7

D $\sqrt{77}$

E 10

6

LANTERN

Two lamp posts stand upright on level ground, one 6 m tall and the other 12 m tall. A cable runs from the top of each post to the foot of the other. A lantern hangs at the point where the two cables cross.

How high above the ground is the lantern?

A 3 m

B 4 m

C 4.5 m

D 9 m

E It depends on how far apart the posts are



7

Let $P(x)$ be a polynomial with real coefficients and degree less than 6, satisfying $P(0) = 1$, $P(1) = 3$, and $P(x^2) = P(x)P(-x)$ for all real numbers x . Find the value of $P(3)$.

[Hint: start small]

A 7

B 9

C 11

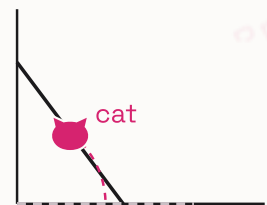
D 13

E 15

8

CAT

A ladder 5 m long starts upright, flush against a vertical wall, with its foot on horizontal ground. A cat is asleep exactly halfway along the ladder. The foot of the ladder slides away from the wall, the top staying in contact with the wall, until the ladder lies flat on the ground. The cat does not wake up and does not move along the ladder.



How far does the cat travel?

A $5\sqrt{2}/2$ mB $5\pi/4$ m

C 5 m

D $5\pi/2$ mE $25\pi/4$ m

9

How many ordered pairs of positive integers (a, b) satisfy

$$1/a + 1/b = 1/12 ?$$

A 8

B 12

C 14

D 15

E infinitely many



QUESTIONS 10 TO 12 • DOOMSCROLL

You are doomscrolling on your phone, bouncing between exactly 3 apps: **TikTok**, **Instagram**, and **YouTube**.

You start your session by opening **TikTok** (this is app #1).

To keep your brain stimulated, you follow one strict rule: **you never view the exact same app twice in a row**.

10

Let's imagine you have scrolled through a sequence of exactly 20 apps. Suppose there are exactly A different valid sequences of 20 apps that end on TikTok, and exactly B different valid sequences that end on either Instagram or YouTube.

If you scroll to a 21st app, how many valid sequences of 21 apps will end on TikTok?

A A B B C $2A$ D $2B$ E $A + B$

11

Notice that after your first app, you always have exactly 2 choices for the next one. Using the trick you discovered in Question 10, you can easily build a step-by-step list to find out how many sequences of 9 apps end on TikTok. What is that exact number?

A 42

B 86

C 128

D 170

E 256

12

You keep scrolling until you have viewed a valid sequence of exactly 10 apps (starting with TikTok as app #1). You realise that out of these 10 apps, **exactly 4 of them were TikTok**. How many different valid sequences of 10 apps fit this description?

A 120

B 160

C 200

D 240

E 320