LIVE SESSION
Friday, November 6 · 4:00–7:00 PM

IA
INFINITE ACADEMICS

NIGHT-BEFORE PLAYBOOK · NOVEMBER EDITION

SAT Crash Course Student Packet

The whole test on four pages, then one hard problem per concept — 42 in all, worked together tonight. Test day: Saturday, November 7.

PART 1
The maps
Every Math, Reading and Grammar concept as a trigger → move. Four pages. Memorize the triggers.

PART 2
The problems
Math, then Reading, then Grammar. One concept, one hard problem. Mark every miss — those marks are your morning review.

PART 3
Last 16 hours
What to do tonight and tomorrow morning. Last page.

NAME

_____

Math on two pages

Read the trigger in the question, do the move. Choose the quickest method for that question — blue cards are the Desmos moves.

DESMOS

▶ ANY EQUATION

Graph both sides → read the x at each crossing

$y =$ each side · check each x against the original domain

DESMOS

▶ KNOWN LINEAR MODEL

Rate + one point, or two points

two points → different x-values · regression optional

DESMOS

▶ "TOO MANY LETTERS"

Substitute what you know, then ~

swap $=$ for $\sim$, read Parameters · does the info pin it down?

DESMOS

▶ "WHICH EXPRESSION IS EQUIVALENT"

Test values to eliminate choices

$x = 2$, compare · confirm by simplifying or factoring

LINEAR

▶ $y = mx + b$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

b = starting point · parallel: same m · perpendicular: $-\frac{1}{m}$

LINEAR

▶ "NO SOLUTION"

Parallel → same slope, different b

match the ratios $\frac{A_1}{A_2} = \frac{B_1}{B_2}$

LINEAR

▶ "INFINITELY MANY"

Same line → same slope AND same b

one equation is a multiple of the other

LINEAR

▶ "FIRST 25 ... EACH ADDITIONAL"

Starting fee + rate × (extra)

$f(n) = \text{rate} \cdot n + \text{adjusted start}$

QUADRATICS

▶ VERTEX

$$x = -\frac{b}{2a}$$

root form: halfway between roots · vertex form: (h, k)

QUADRATICS

▶ "SUM OF THE SOLUTIONS"

$$-\frac{b}{a}$$

"product" → $\frac{c}{a}$ · never find the roots

QUADRATICS

▶ "NO REAL SOLUTION / EXACTLY ONE"

$D = b^2 - 4ac$

$D < 0$ none · $D = 0$ one · $D > 0$ two

QUADRATICS

▶ "FACTOR / ZERO / SOLUTION / x-INTERCEPT"

Same fact, four names

factor $(x - r)$ ⇔ graph crosses or touches the x-axis at r

FUNCTIONS

▶ $f(x + c)$ vs $f(x) + c$

Inside = sideways & opposite · Outside = up/down as written

$f(x - 5)$ → right 5

FUNCTIONS

▶ "SHIFTED MAX / MIN"

Sideways shift keeps the value

only up/down changes the max or min

EXPONENTIAL

▶ "EACH YEAR ... % MORE / LESS"

$y = a \cdot b^{t/k}$

$b = 1 \pm r$ (128% greater → 2.28) · k = length of one period

EXPONENTIAL

▶ MONTHS IN THE EXPONENT, YEARS IN THE QUESTION

Rewrite the base: $B = b^{12/k}$

increase: $100(B - 1)\%$ · decrease: $100(1 - B)\%$

Geometry, trig & data

Reference sheet has the formulas. These cards have the moves the reference sheet doesn't.

ANGLES

▶ PARALLEL LINES

Every acute equal · every obtuse equal · acute + obtuse $= 180^\circ$

no figure? draw one, label a and $180 - a$

TRIANGLES

▶ 30–60–90 / 45–45–90

$x,\ x\sqrt{3},\ 2x \cdot s,\ s,\ s\sqrt{2}$

hiding inside equilateral triangles and squares

TRIANGLES

▶ ALTITUDE TO THE HYPOTENUSE

Both small triangles ~ the original

altitude from the right angle to the hypotenuse · shared angle → same trig ratio in all three

TRIG

▶ SOH · CAH · TOA

$\sin = \frac{\text{opp}}{\text{hyp}} \cdot \cos = \frac{\text{adj}}{\text{hyp}} \cdot \tan = \frac{\text{opp}}{\text{adj}}$

given one ratio → draw the triangle → Pythagoras for the third side

TRIG

▶ "THE OTHER ACUTE ANGLE"

$\sin A = \cos(90^\circ - A)$

sine of one = cosine of the other

CIRCLES

▶ $(x-h)^2 + (y-k)^2 = r^2$

Center (h, k) **— flip the signs · radius** $= \sqrt{r^2}$

expanded form? complete the square or just graph it

CIRCLES

▶ ARC / SECTOR

fraction of the circle $= \frac{\text{angle}}{360^\circ}$

× circumference $2\pi r$ · × area πr^2

SOLIDS

▶ VOLUME

base area × height · pyramid / cone: $\frac{1}{3}$ **of that**

two unknowns? volume + one face = two equations, divide

SOLIDS

▶ SURFACE AREA

Add the faces you can touch

cut a solid → new faces appear

UNITS

▶ "SQUARE FEET → SQUARE METERS"

Square the conversion factor

cubic → cube it · minutes → ÷ 60

PERCENT

▶ "x% GREATER"

× $(1 + x/100)$

"of" = multiply · initial × multiplier = final

DATA

▶ BOX PLOT

min · Q1 · median · Q3 · max

range = tip to tip · IQR = box width · mean? cannot tell

DATA

▶ "MEAN OF THE SET IS …"

Work in totals: sum = mean × count

missing = new sum − known sum

DATA

▶ MEDIAN WITH UNKNOWNS

Middle value in order pins one unknown

range ties first to last · mean gives the third equation

DATA

▶ "STANDARD DEVIATION"

Spread from the mean — compare visually when it's clear

clustered → small · spread out → large · Desmos: stdev = sample, stdevp = population

TEST DAY

▶ DESMOS OPEN BEFORE Q1

Reference sheet under the Math menu

flag, never blank · Module 1 accuracy sets your ceiling

Reading is pure strategy

I Identify the type from the question. Never read the passage first. →

Q Break the question down before the passage or the answers. →

P Read for structure: nouns, definitions, contradictions. New idea > old idea. →

M Build your own answer, then match the closest choice.

DO FIRST

▶ VOCAB BLANK

Your word first, then match

clue words beat your gut

▶ "MAIN IDEA / OVERALL STRUCTURE"

Broad question → broad answer

sentence-by-sentence summary; one wrong part kills the choice

▶ "ACCORDING TO / BASED ON THE TEXT"

Narrow question → narrow answer

explicit: skim & find · implicit: read & build your own

▶ "FUNCTION OF THE UNDERLINED …"

What does it DO for the sentence around it?

never your opinion, only the author's job

▶ "MOST EFFECTIVELY ILLUSTRATES THE CLAIM"

Decide what the quote must SHOW

stem already gives the event? then the quote must show the reason

DO AFTER VOCAB

▶ "MOST LOGICALLY COMPLETES"

S-I-S

Supports · Implied · Stops (no new idea)

▶ STUDENT NOTES

Read the goal twice

the notes are a haystack; the goal names the needle

▶ POEM

DIRT — read it literally

Descriptions · Imagery · Repetition · Title

DO LAST

▶ TABLE / GRAPH

Claim first, then the data

title · trends · labels point you to the cells that test the claim

▶ TEXT 1 / TEXT 2

One passage at a time

agree · disagree · expound? start with the responder

✕ Doesn't answer the question **✕ Extreme (only, always, never)** **✕ Always true (says nothing)** **✕ Identical to another choice** **✕ One wrong word**

ORDER OF ATTACK **Vocab Q1–5** first → jump to **Note-taking Q25–27** → then go backwards, Q24 down to Q6, until the module is done. Fastest points first; the long passages wait for you in the middle.

Grammar: the punctuation decision

Full sentence | full sentence
period · semicolon · comma + FANBOYS · colon (if #2 explains #1)

Full sentence | fragment
comma after a dependent opener · colon before a list · dash before an add-on

Interrupter in the middle
two commas · two dashes · two parentheses — never mixed, never one

▶ TRANSITION BLANK
Name the relationship, then the word
contradiction · cause · example · addition · clarification

▶ COMMA CHOICES
A comma is never a pause
lists · dependent opener, then a comma · appositive pairs · + FANBOYS

▶ OPENING PHRASE, _____
The thing described comes next
“Knowing that..., the researchers ...” — not the moths

▶ TITLE + NAME
Essential → no commas · Extra → two commas
“architect Maya Chen” · never one comma

▶ -ING / TO _____
A bare -ing or to-form carries no tense
cross out -ing and to-phrases; is a tensed verb left?

▶ FULL SENTENCE _____ FULL SENTENCE
; = . = , FANBOYS
comma alone never joins two sentences

▶ COLON
Complete clause first → colon → list or explanation
what follows need not be a sentence

▶ DASHES / ( )
One dash adds a detail · a pair sets off an aside
nested punctuation closes from the inside out; essential phrase → no punctuation

▶ WHICH VERB?
Cross out everything between subject and verb
“The array of data ... provides” · as well as ≠ and

▶ COMPARED TO THAT OF X, _____
Replace “that” with its noun
then compare like with like — the same feature on both sides

▶ ’S OR S’
Count the owners, then the owned
its = possessive · it’s = it is · its’ doesn’t exist

▶ QUOTES
Periods & commas inside · colons & semicolons outside
comma before the quote only if it isn’t part of the grammar

MATH · TOPIC 01 OF 20 The toolkit

Desmos turns hard algebra into a graph you read

ANY EQUATION
Graph $y =$ (left side) and $y =$ (right side). Read the x-value at each crossing, then check it against the original equation's domain.

KNOWN LINEAR MODEL
Use a rate and one point, or two points with different x-values, to write $y = mx + b$. Table regression (**+ → Table**, then $y_1 \sim mx_1 + b$) is optional.

STATS BUILT IN
$L = [4, 8, 15, 16, 23, 42]$ then **mean(L)**, **median(L)**, **stdev(L)** for a sample, **stdevp(L)** for a population.

PATTERN Pick the quickest method for the question. A rental with a first-day fee: start with that fee, then add the daily rate for each extra day — and the extra days are $d - 1$, not d.

REP — BUILD THE FUNCTION LINEAR FUNCTIONS · #17594

The cost of renting a power washer is $\$56$ for the first day and $\$28$ for each additional day. Which of the following functions gives the cost $C(d)$, in dollars, of renting the power washer for d days, where d is a positive integer?

A) $C(d) = 28d + 28$

B) $C(d) = 28d + 56$

C) $C(d) = 56d - 28$

D) $C(d) = 56d + 84$

MATH · TOPIC 02 OF 20 "Too many letters" → tilde

Fit and check a parameter

STEP 1
Substitute every value you know first, then type the equation with $\sim$ in place of $=$.

STEP 2
Desmos lists the unknown letter under **Parameters**.

STEP 3
Check the value in the original equation, then answer the question actually asked.

PATTERN Two letters you don't know and one you do? Pick a friendly value for the free letter (say $p = 2$), run the tilde, and read the parameter you need.

REP — EXPONENT HIDDEN IN A ROOT NONLINEAR EQUATIONS · #16945

$$\sqrt[7]{p^4} = t^{\frac{5}{6}}$$

In the given equation, $p > 1$ and $t > 1$. If $t = p^{2n-1}$, where n is a constant, what is the value of n?

STUDENT-PRODUCED RESPONSE

MATH · TOPIC 03 OF 20 Slopes and intercepts

Linear systems: no solution & infinitely many

NO SOLUTION
Parallel: same slope, different y-intercept.

INFINITE SOLUTIONS
Same line: same slope **and** same intercept.

HOW TO RUN IT
Both equations into $Ax + By = C$ form, then match the ratios $\frac{A_1}{A_2} = \frac{B_1}{B_2}$ (and $\neq \frac{C_1}{C_2}$ for no solution).

PATTERN Clean up first. Variables left, constants right. Then the ratio — nothing else.

REP — PARALLEL LINES SYSTEMS OF TWO LINEAR EQUATIONS · #20097

$$5 - 8s = mt$$

$$8s + 7t = 15 - 7t$$

In the given system of equations, m is a constant. If the system has no solution, what is the value of m?

STUDENT-PRODUCED RESPONSE

MATH · TOPIC 04 OF 20 Advanced Math

Function transformations

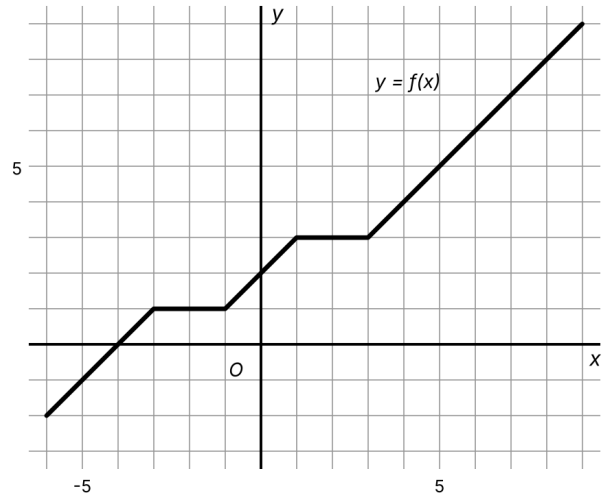
OUTSIDE — VERTICAL, AS WRITTEN
$f(x)+c$ up · $f(x)-c$ down · $-f(x)$ flips over the x-axis

INSIDE — HORIZONTAL, OPPOSITE
$f(x+c)$ left · $f(x-c)$ right · $f(-x)$ flips over the y-axis

THE SHORTCUT
You don't need to draw the new graph. $y=f(x+2)$ at $x=0$ is just $f(2)$ — read it off the old graph.

PATTERN "y-intercept of $f(x+c)$" = the old graph's value at $x=c$. Plug in, don't shift.

REP — READ THE OLD GRAPH LINEAR FUNCTIONS · #11568



The complete graph of the function f is shown in the xy-plane. What is the y-intercept of the graph of $y=f(x+2)$?

A) $(0,3)$

B) $(0,2)$

C) $(0,1)$

D) $(0,0)$

MATH · TOPIC 05 OF 20 Advanced Math

Factors, zeros & solutions

FOUR NAMES, ONE FACT
factor $(x - r)$ · zero $x = r$ · solution $f(r) = 0$ · x-intercept $(r, 0)$

WITH A CONSTANT IN IT
Plugging in a value for r (say $r = 1$) can **eliminate** a choice. To **confirm** a factor for every allowed r, multiply the factors out symbolically or check its zero algebraically.

BY HAND
Product of outer coefficients $2 \cdot 45r = 90r$; find two things that multiply to $90r$ and add to $18r + 5$: $18r$ and 5.

PATTERN A choice is a factor only if the expression is zero where the choice is zero. $2x + 5 = 0$ at $x = -\frac{5}{2}$ — plug that in with r still a letter and see if you get zero for every r.

REP — WHICH IS A FACTOR EQUIVALENT EXPRESSIONS · #18970

Which of the following is a factor of the expression $2x^2 + (18r + 5)x + 45r$, where r is a nonzero constant?
I. $x + 9r$ II. $2x + 5$

A) I only
B) II only
C) I and II
D) Neither I nor II

MATH · TOPIC 06 OF 20 Advanced Math

Quadratic equations

STANDARD $Y = AX^2 + BX + C$
Vertex at $x = -\dfrac{b}{2a}$.

ROOT FORM
Vertex halfway between the roots.

VERTEX FORM $A(X - H)^2 + K$
(h, k) is the vertex.

PATTERN A vertical shift ($+1$) moves the maximum by exactly that much. Find the max of the original, then add.

REP — MAX OF A SHIFTED FUNCTION NONLINEAR FUNCTIONS · #15461

$$r(t) = 55t - 2t^2$$

The function r is defined by the given equation. The function s is defined by $s(t) = r(t) + 1$. Which expression represents the maximum value of $s(t)$?

A) $1 + \left(\dfrac{55}{2}\right)^2$
B) $1 + 2\left(\dfrac{55}{4}\right)^2$
C) $1 - 2\left(\dfrac{55}{4}\right)^2$
D) $1 - 2\left(\dfrac{55}{2}\right)^2$

MATH · TOPIC 07 OF 20 Quadratics

Sum and product of the solutions

SUM

$r_1 + r_2 = -\dfrac{b}{a}$

PRODUCT

$r_1 r_2 = \dfrac{c}{a}$

ALREADY FACTORED?

Then just read each root: set every factor to zero. x^2 counts as the root 0 (twice, but it adds nothing).

PATTERN When the equation is handed to you factored, the formulas are overkill — list the roots and add.

REP — SUM OF ROOTS, FACTORED FORM NONLINEAR EQUATIONS · #16950

$$7x^2(4x - 13)(4x - u) = 0$$

In the given equation, u is a positive constant. The sum of the solutions to the equation is 25. What is the value of u?

STUDENT-PRODUCED RESPONSE

MATH · TOPIC 08 OF 20 Advanced Math

Discriminants

$D = B^2 - 4AC$

$D > 0$ two · $D = 0$ one · $D < 0$ none

READ B CAREFULLY

Here $b = \sqrt{k - 3}$, so $b^2 = k - 3$ — the square root disappears when you square it.

PATTERN "Exactly one real solution" means $D = 0$. Set it up, and the question is one line of algebra.

REP — EXACTLY ONE SOLUTION NONLINEAR EQUATIONS · #17972

$$x^2 + \left(\sqrt{k - 3}\right)x + 26 = 0$$

In the given equation, k is a constant. The equation has exactly one real solution. What is the value of k?

A) 29

B) 104

C) 107

D) 101

MATH · TOPIC 09 OF 20 Advanced Math

Exponential equations

THE ONE FORM
$y = a \cdot b^{t/k}$ — a = value at $t = 0$, b = multiplier per period, k = length of a period.

DIRECTION
"Triples as x **decreases**" = divides by 3 as x increases → $b = \frac{1}{3}$.

SAME FUNCTION, DIFFERENT CLOTHES
$\left(\frac{1}{3}\right)^x = \left(\frac{1}{9}\right)^{x/2} = 3^{-x}$ — rewrite the base to match the choices.

PATTERN Test a point. $h(0) = 12$ and $h(-1) = 36$. Plug $x = -1$ into each choice; only one gives 36.

REP — BUILD FROM A VERBAL RULE NONLINEAR FUNCTIONS · #11864

For the function h, the value of $h(x)$ triples whenever x decreases by 1. If $h(0) = 12$, which equation defines h ?

A) $h(x) = 12(3)^{2x}$

B) $h(x) = 12(9)^{x/2}$

C) $h(x) = 12\left(\frac{1}{3}\right)^{2x}$

D) $h(x) = 12\left(\frac{1}{9}\right)^{x/2}$

MATH · TOPIC 10 OF 20 Geometry and Trigonometry

Geometry: lines, angles & triangles

PARALLEL + TRANSVERSAL
All acute angles equal, all obtuse angles equal, acute + obtuse $= 180^\circ$.

TWO PAIRS OF PARALLELS
Still only two angle sizes in the whole figure.

TRIANGLE
Angles sum to 180°; exterior angle = sum of the two remote interior angles.

PATTERN No figure? Don't draw sixteen angles. Write acute + obtuse $= 180$, solve for x, then count.

REP — SIXTEEN ANGLES, TWO SIZES LINES, ANGLES, AND TRIANGLES · #15134

Parallel lines a and b intersect parallel lines c and d, forming eight acute angles and eight obtuse angles. The measure, in degrees, of one of the acute angles is represented by the expression $5x + 52$. The measure, in degrees, of one of the obtuse angles is represented by the expression $7x + 92$. What is the sum of the measures, in degrees, of 2 of the acute angles and 3 of the obtuse angles?

STUDENT-PRODUCED RESPONSE

MATH · TOPIC 11 OF 20 Geometry and Trigonometry

Special right triangles

45–45–90
legs s, hypotenuse $s\sqrt{2}$

30–60–90
x, $x\sqrt{3}$, $2x$

RIGHT TRIANGLE IN A CIRCLE
The hypotenuse is a diameter (Thales). Radius = half the hypotenuse.

PATTERN Use the diameter d as the hypotenuse: legs are $\frac{d}{\sqrt{2}}$ each, so the perimeter is $d(1+\sqrt{2})$. Factor $72+72\sqrt{2}=72(1+\sqrt{2})$ and read off d.

REP — 45–45–90 INSCRIBED IN A CIRCLE CIRCLES · #11424

An isosceles right triangle is inscribed in a circle, such that each vertex of the triangle lies on the circumference of the circle. The perimeter of the triangle is $72+72\sqrt{2}$ centimeters. If the area of the circle is $p\pi$, what is the value of p?

STUDENT-PRODUCED RESPONSE

MATH · TOPIC 12 OF 20 Geometry and Trigonometry

Drop the altitude

ISOSCELES → ALTITUDE
The altitude from the apex splits the base in half and makes two congruent right triangles.

THEN TRIG
Half the base is the adjacent side; $\tan$ of the base angle gives the height.

ALTITUDE THEOREM
For the altitude h from the right angle to the hypotenuse: if p and q are the two hypotenuse segments, $h^2=p\times q$. The two small triangles are similar to the original.

PATTERN $\tan R=\frac{7}{24}$ is a 7–24–25 triangle screaming at you. Half-base 24 → height 7.

REP — ISOSCELES, TAN GIVEN LINES, ANGLES, AND TRIANGLES · #17989

In triangle RST, $RS=ST$ and the length of $\overline{RT}$ is 48 units. If $\tan R=\dfrac{7}{24}$, what is the area, in square units, of triangle RST?

A) 168
B) 288
C) 84
D) 336

MATH · TOPIC 13 OF 20 Trigonometry

SOHCAHTOA & similar triangles

SOH · CAH · TOA

$\sin = \frac{\text{opp}}{\text{hyp}} \cdot \cos = \frac{\text{adj}}{\text{hyp}} \cdot \tan = \frac{\text{opp}}{\text{adj}}$

SIMILAR TRIANGLES

Corresponding angles are equal, so every trig ratio of A is the same for D.

THE MOVE

Given $\tan$, draw the triangle with opposite and adjacent, then Pythagoras for the hypotenuse.

PATTERN $612^2 + 35^2 = 613^2$. When the numbers look ugly, they're a Pythagorean triple.

REP — TAN TO SIN ACROSS SIMILAR TRIANGLES RIGHT TRIANGLES AND TRIGONOMETRY · #31999

Triangle ABC is similar to triangle DEF, where angle A corresponds to angle D and angle C corresponds to angle F. Angles C and F are right angles. If $\tan A = \frac{612}{35}$, what is the value of $\sin D$?

A) $\frac{612}{613}$

B) $\frac{35}{613}$

C) $\frac{613}{612}$

D) $\frac{613}{35}$

MATH · TOPIC 14 OF 20 Problem Solving and Data Analysis

Percent hidden in an exponent

REWRITE THE BASE

$(b)^{x/k}$ per month → per year the base is $b^{12/k}$.

PERCENT CHANGE

With annual multiplier B: increase $= 100(B-1)\%$, decrease $= 100(1-B)\%$.

PATTERN Months in the function, years in the question. Count the periods in a year and raise the base to that power.

REP — MONTHS TO YEARS, DECAY NONLINEAR FUNCTIONS · #12596

$$h(x) = 12{,}000(0.8)^{x/4}$$

The function h represents the value, in dollars, of a car after x months of use. If the value of the car decreases each year by $r\%$ of its value the preceding year, what is the value of r?

A) 20

B) 64

C) 48.8

D) 99.2

MATH · TOPIC 15 OF 20 Problem Solving and Data Analysis

Box & whisker plots

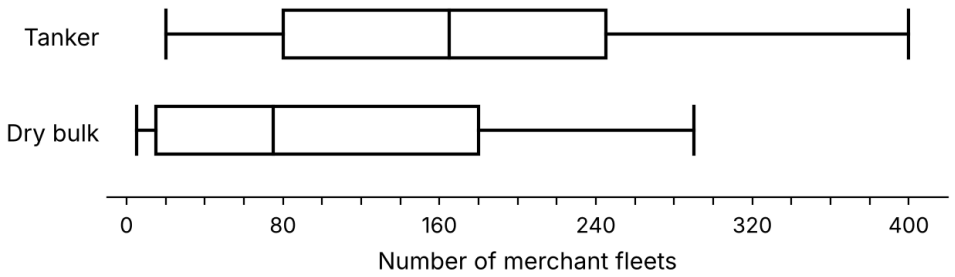
FIVE NUMBERS
min · Q1 · median · Q3 · max — whisker tips are the extremes, the line in the box is the median.

RANGE VS IQR
range = max − min · IQR = Q3 − Q1

CANNOT TELL
mean, number of values, individual values

PATTERN "Must be greater" — compare the exact feature asked: median = the line, range = tip to tip. Don't eyeball the box.

REP — WHICH MEASURES MUST BE GREATER ONE-VARIABLE DATA · #31902



The box plots shown summarize the number of tanker and dry-bulk merchant fleets for 18 countries. Which of the following measures must be greater for the number of tanker merchant fleets than for the number of dry-bulk merchant fleets?

I. The median II. The range

A) I only

B) II only

C) I and II

D) Neither I nor II

MATH · TOPIC 16 OF 20 Statistics

Mean with a missing value

TOTALS, NOT AVERAGES
sum = mean × count · missing = new sum − known sum

THE CONSTRAINTS
Read the first sentence again: positive, integer, less than 60. Step the target mean until the missing value obeys every rule.

PATTERN Known sum $= 42 \times 9 = 378$. Try mean 43: missing $= 430 - 378 = 52$ ✓. Try 44: $440 - 378 = 62$ × (not < 60).

REP — INTEGER MEAN, CAPPED VALUES ONE-VARIABLE DATA · #18083

Data set A consists of 10 positive integers less than 60. The list gives 9 of the integers from data set A.

$$42,\ 46,\ 44,\ 42,\ 38,\ 39,\ 40,\ 47,\ 40$$

The mean of these 9 integers is 42. If the mean of data set A is an integer that is greater than 42, what is the value of the largest integer from data set A?

A) 43

B) 47

C) 52

D) 59

MATH · TOPIC 17 OF 20 Problem Solving and Data Analysis

Dimensional analysis

CONVERTING
Given $\times \frac{\text{want}}{\text{have}}$. The unit you are leaving goes on the bottom.

CUBED UNITS
$1\text{ m} = 100\text{ cm}$ means $1\text{ m}^3 = 100^3 = 1{,}000{,}000\text{ cm}^3$. Cube the whole factor.

PATTERN Volume is cubed. The wrong answers are built from forgetting to cube the 100.

REP — CUBIC METERS TO QUARTS RATIOS, RATES, AND UNITS · #16656

A container has a volume of 0.84 cubic meters. Which of the following is closest to this volume, in quarts? (Note: 100.00 centimeters $= 1$ meter. Use 946.35 cubic centimeters $= 1.00$ quart.)

A) 0.09

B) 7.95

C) 794.93

D) 887.62

MATH · TOPIC 18 OF 20 Geometry and Trigonometry

Circle equations

STANDARD
$(x-h)^2+(y-k)^2=r^2$ — center (h,k), radius r.

EXPANDED
$x^2+y^2+ax+by+c=0$ — to get from standard to expanded, FOIL and move everything left.

DESMOS
Graph the standard form and your expanded form together — they must overlap exactly. Expand the squares by hand; Desmos only checks.

SHORTCUT FOR C
$c=h^2+k^2-r^2$: add the squares of the center coordinates, subtract the square of the radius.

PATTERN Build standard form from the center and radius, expand the squares by hand, and read the constant — or jump straight to $h^2+k^2-r^2$.

REP — STANDARD TO EXPANDED CIRCLES · #16532

A circle in the xy-plane has its center at $(-4,4)$ and has a radius of 7. An equation of this circle is $x^2+y^2+ax+by+c=0$, where a, b, and c are constants. What is the value of c?

STUDENT-PRODUCED RESPONSE

MATH · TOPIC 19 OF 20 Geometry and Trigonometry

Area and volume

CONE / PYRAMID
$V=\frac{1}{3}(\text{base area})\,h$

SLANT HEIGHT
Right triangle: radius, height, slant. $\ell=\sqrt{r^2+h^2}$.

WORK BACKWARD
Base area gives r; volume gives h; Pythagoras gives ℓ.

PATTERN Three steps, every one a formula from the reference sheet. The only trap is stopping at step two.

REP — CONE, SLANT HEIGHT AREA AND VOLUME · #17592

A right circular cone has a volume of $34{,}496\pi$ cubic centimeters and the area of its base is $3{,}136\pi$ square centimeters. What is the slant height, in centimeters, of this cone?

A) 11
B) 33
C) 56
D) 65

MATH · TOPIC 20 OF 20 Geometry and Trigonometry

Arc length, sectors & radians

FRACTION OF THE CIRCLE

$\frac{\text{angle}}{360^\circ}$ — then × circumference for arc, × area for sector.

RADIANS

degrees $\times \frac{\pi}{180}$; $s = r\theta$ and $A = \frac{1}{2}r^2\theta$ only with θ in radians.

PATTERN 36° is one tenth of the circle. One tenth of the circumference is 3 inches → the whole thing is 30.

REP — ARC TO CIRCUMFERENCE CIRCLES · #16732

A circle has center O, and points A and B lie on the circle. The measure of arc AB is 36° and the length of this arc is 3 inches. What is the circumference, in inches, of the circle?

A) 3

B) 6

C) 9

D) 30

READING · QUESTION TYPE 01 OF 10 Infinite App question #17721

Vocabulary: fill in the blank

DO FIRST

STEPS

1. Read the sentence for understanding.
2. Plug in your own word before looking at any choice.
3. Match your word to the closest choice.
4. Check against the clue words, not your gut.

TIPS

- The colon is a clue: what follows it explains the blank.
- A real synonym for your word can still be wrong for this sentence.

WE WORK THIS ONE TOGETHER WORDS IN CONTEXT · DIFFICULTY: HARD

Studying menus from nineteenth-century restaurants, old coupons clipped out of newspapers, and posters promoting concerts by long-forgotten musicians may seem like a frivolous pursuit, but ephemeral objects like these are useful as evidence of cultural change: they can _____ shifts in norms, values, and concerns that traditional objects of historical inquiry may not.

Which choice completes the text with the most logical and precise word or phrase?

A) dissociate from

B) collude with

C) compensate for

D) attest to

READING · QUESTION TYPE 02 OF 10 Infinite App question #14499

Broad scope: overall structure

BROAD ANSWERS ONLY

STEPS

1. Identify the type: main idea, or overall structure.
2. Summarize each sentence in two or three words as you go.
3. Match the sequence — all three parts of the choice must be right.

TIPS

- A choice that covers only one sentence cannot describe the whole.
- Invented content (future projects, public opinion) is an instant cross-out.

WE WORK THIS ONE TOGETHER TEXT STRUCTURE AND PURPOSE · DIFFICULTY: HARD

Community science, which involves professional scientists collaborating with amateur science enthusiasts to study a topic, is often an effective and engaging way to conduct research. It can allow people to assist with conservation efforts, build youth confidence in the sciences, and increase the amount of data researchers can collect. This approach was essential to the success of a study by biologist Abbigail Merrill and colleagues of how butterfly color relates to flower choice, which included findings from hundreds of students and community members in northwestern Arkansas.

Which choice best describes the overall structure of the text?

A) It identifies a particular approach to research, lists some benefits of that approach, and then mentions a study in which that approach was used.

B) It argues for a new approach to scientific research, comments on the public's opinion about the approach, and then describes how that approach was applied in a certain study.

C) It describes the development of a type of scientific collaboration, shows how that type of collaboration has been used in a particular field of study, and then suggests future collaborative projects.

D) It introduces the topic of a scientific study, describes the study's importance, and then presents the study's results.

READING · QUESTION TYPE 03 OF 10 Infinite App question #14875

Narrow scope: explicit & implicit detail

NARROW ANSWERS ONLY

STEPS

1. Decide: explicit ("according to") or implicit ("why," "suggest").
2. Find the exact sentence that answers the question.
3. Build your own answer from that sentence, then match.

TIPS

- The last sentence often holds the contrast the question asks about.
- Cross out any choice that adds a fact the text never gives.

WE WORK THIS ONE TOGETHER INFERENCES · DIFFICULTY: HARD

Joel Brown and colleagues showed that high moonlight intensity inhibits the activity of the Arizona pocket mouse (*Perognathus amplus*), a finding explicable in terms of benefits and costs: greater lunar intensity may not enable the mice to increase foraging success enough to offset the higher chance of detection by predatory owls or hawks. Though many other nocturnal mammals respond to lunar intensity variations similarly to Arizona pocket mice, Azara's night monkeys (*Aotus azarae*) display the opposite pattern, as their heavy reliance on visual foraging results in a different balance of reward and risk.

Based on the text, why do Azara's night monkeys respond to high lunar intensity differently than Arizona pocket mice do?

A) In such conditions, the chance of detection by predators declines for Azara's night monkeys but rises for Arizona pocket mice.

B) Although the risks of activity in such conditions are greater for Azara's night monkeys than they are for Arizona pocket mice, the rewards are also greater for Azara's night monkeys.

C) In such conditions, the costs of activity are lower relative to the benefits of activity for Azara's night monkeys than they are for Arizona pocket mice.

D) Due to their heavy reliance on visual foraging, Azara's night monkeys experience a reduction in their foraging success in such conditions, whereas Arizona pocket mice experience no change in their foraging success.

READING · QUESTION TYPE 04 OF 10 Infinite App question #17849

Function & purpose: the underlined portion

ALWAYS INFERENCE

STEPS

1. Read the sentence before and after the underline.
2. Ask what the phrase concedes, adds, or sets up.
3. Match at the same scope — a phrase does a small job, not the whole text's job.

TIPS

- Here "while" means "although": the phrase acknowledges that extinctions are abrupt on a geological timescale before the sentence insists they take thousands of years.
- A choice that describes the whole paragraph is too broad for a four-word phrase.

WE WORK THIS ONE TOGETHER TEXT STRUCTURE AND PURPOSE · DIFFICULTY: HARD

Fossil evidence indicates that the End-Triassic mass extinction—the relatively sudden die-off of about 80 percent of species (including many species of bivalves)—occurred approximately 201 million years ago. Researchers have identified the effects of a sudden release of carbon dioxide as a possible initial cause of this mass extinction. But mass extinctions, while abrupt in geological terms, unfold over thousands or millions of years: it's likely that multiple factors drove extensive species loss.

Which choice best states the function of the underlined portion (while abrupt in geological terms) in the text as a whole?

A) It expands on the uncertainty mentioned earlier regarding the pace of extinction of species of bivalves relative to that of other species.

B) It concedes that the pace of mass extinctions as described in the information that follows is perceived differently when considered from another point of view.

C) It offers support for an earlier claim about the primary cause of a mass extinction that is then qualified by the information that follows.

D) It emphasizes that a question about the beginning of a mass extinction raised by the researchers mentioned earlier is still unresolved.

READING · QUESTION TYPE 05 OF 10 Infinite App question #16182

Support the claim with a quotation

CLAIM ONLY

STEPS

1. Separate what the stem already tells you from what the quotation still needs to support.
2. Write what a perfect quote would say.
3. Check each quote against the part that still needs support.

TIPS

- The stem already gives the event — Archer arrives late. The quote must supply the **reason**: that he enjoys anticipating a pleasure.
- Quotes that are merely *about* the opera are decoys.

WE WORK THIS ONE TOGETHER COMMAND OF EVIDENCE (TEXTUAL) · DIFFICULTY: HARD

The Age of Innocence is a 1920 novel by Edith Wharton set in New York City in the 1870s. In the novel, Newland Archer arrives late to an opera performance, which the narrator attributes to Newland's enjoyment of anticipation: _____

Which quotation from *The Age of Innocence* best illustrates the claim?

A) "To come to the Opera in a [carriage for hire] was almost as honourable a way of arriving as in one's own carriage."

B) "[T]hinking over a pleasure to come often gave [Newland] a subtler satisfaction than its realisation."

C) "When Newland Archer opened the door at the back of the club box the curtain had just gone up on the garden scene. There was no reason why the young man should not have come earlier, for he had dined at seven, alone with his mother and sister."

D) "No expense had been spared on the setting, which was acknowledged to be very beautiful even by people who shared [Newland's] acquaintance with the Opera houses of Paris and Vienna."

READING · QUESTION TYPE 06 OF 10 Infinite App question #16380

Completing the text: S-I-S

MOST DIFFICULT · DO AFTER VOCAB

STEPS

1. Find the chain of cause and effect in the passage.
2. Build your own ending before reading the choices.
3. Check: Supports the chain, is Implied, Stops without a new idea.

TIPS

- "Therefore, the less …" means the answer completes a comparison that follows directly from the chain.
- A choice that introduces a new variable (temperature, crispiness) fails the S in SIS.

WE WORK THIS ONE TOGETHER INFERENCES · DIFFICULTY: HARD

Biochemists I. Sam Saguy and Eli J. Pinthus studied the mass and heat transfer processes that occur when foods, such as the Indian snacks makka poha and shankarpali, are fried in oil. During frying, water in the crust evaporates, leaving voids that oil can fill, thereby increasing the food's fat content. As the process continues, water from the food's center moves to the crust as long as the crust remains permeable. Therefore, the less moisture a food loses during frying, _____

Which choice most logically completes the text?

A) the less the fat content is increased through frying.

B) the higher the temperature must be to fry the food.

C) the slower the crust will lose its permeability.

D) the crispier the crust will be when frying is completed.

READING · QUESTION TYPE 07 OF 10 Infinite App question #17453

Note-taking (student notes)

READ THE GOAL TWICE

STEPS

1. Underline the goal: *explain plosive phonemes*.
2. Find the one choice that defines that word.
3. Only then check it against the notes.

TIPS

- The notes are a haystack; the goal names the needle.
- True statements that explain something else (labial, fricative, /p/ in “pan”) are the decoys.

WE WORK THIS ONE TOGETHER RHETORICAL SYNTHESIS · DIFFICULTY: HARD

While researching a topic, a student has taken the following notes:

- Linguists use phonemes to represent the smallest possible units of sound within a word.
- In English, the phoneme /p/ has labial articulation, which means it is produced using one or both lips, such as in the word “pan.”
- The phoneme /z/ has alveolar articulation, which means it is produced by placing the tongue against or near the roof of the mouth, such as in the word “zoo.”
- /p/ is plosive, a term used for sounds in which air flow is at first fully blocked.
- /z/ is fricative, a term used for sounds in which air flow is partially blocked.

Which choice most effectively uses information from the given sentences to explain plosive phonemes?

A) The phoneme /p/, a unit of sound in which air flow is at first fully blocked, has labial articulation.

B) The phoneme /p/ in the word “pan” is plosive and is produced using both lips.

C) The linguistic term of fricative is used for units of sound in which air flow is partially blocked.

D) In linguistics, plosive is a term used for units of sound in which air flow is at first fully blocked.

READING · QUESTION TYPE 08 OF 10 Infinite App question #19870

Poetry passages: DIRT

COMBO QUESTION

STEPS

1. Read the title and intro line.
2. Read the poem literally, line by line — Descriptions, Imagery, Repetition, Title.
3. Identify the paired type (here: main purpose) and follow that strategy.

TIPS

- Repetition is the key here: “Too green ... Too blue ... Too wonderful ... Too faintly sweet” — then “washing windows,” “scrubbing floors,” “dully sleeping.”
- Two groups of images = a contrast. Find the choice that names both sides.

WE WORK THIS ONE TOGETHER CENTRAL IDEAS AND DETAILS · DIFFICULTY: HARD

This text is adapted from Claude McKay’s 1920 poem “Spring in New Hampshire.”

Too green the springing April grass,
Too blue the silver speckled sky,
For me to linger here, alas,
While happy winds go laughing by,
Wasting the golden hours indoors,
Washing windows and scrubbing floors.

Too wonderful the April night,
Too faintly sweet the first May flowers,
The stars too gloriously bright,
For me to spend the evening hours,
When fields are fresh and streams are leaping,
Wearied, exhausted, dully sleeping

Which choice best states the main purpose of the text?

A) To contrast the beauty of spring with the tedium of the speaker’s routine

B) To pose the speaker’s downcast state of mind against the more upbeat thoughts of the speaker’s companions

C) To juxtapose two seasons that leave memorable impressions on the speaker

D) To analyze how temporary sacrifices help the speaker to appreciate a particular landscape

READING · QUESTION TYPE 09 OF 10 Infinite App question #13997

Graphs & tables: claim first

DO THESE LAST

STEPS

1. Read the claim first: some lakes show an **increase** in ice duration.
2. Use the title and column labels to find the relevant values — the first and last winters.
3. Compare first winter to last winter for each lake; find the row that goes up.

TIPS

- The claim is that **some** lakes **increased**. You need one row that goes up from 1980–81 to 2005–06.
- Latitude is a decoy column — the claim says nothing about latitude.

WE WORK THIS ONE TOGETHER COMMAND OF EVIDENCE (QUANTITATIVE) · DIFFICULTY: HARD

Days per winter with measurable surface ice

Lake	Latitude	1980–81	1985–86	1990–91	1995–96	2000–01	2005–06
Kitusjärvi	62.283	170	176	169	188	127	149
Mirror Lake	43.94	122	129	125	136	141	119
Lake Baikal	51.85	96	118	92	103	127	109

It is common for freshwater lakes near or above a latitude of 45° north of the equator, like Lake Stechlin in Germany, to accumulate surface ice in winter. A study from 1980 to 2006 showed that, in general, the number of days per winter that such lakes have measurable amounts of surface ice is declining. However, a researcher claimed that some lakes have instead seen an increase in the duration of ice.

Which choice best describes data in the table that support the researcher's claim?

A) Lake Baikal had fewer days of ice in the winter of 1980–81 than it did in the winter of 2005–06.

B) Kitusjärvi is at a higher latitude than Mirror Lake and typically had more days of ice per winter than Mirror Lake did.

C) Kitusjärvi had more days of ice in the winter of 1980–81 than it did in the winter of 2005–06.

D) Kitusjärvi is at a higher latitude than Mirror Lake and typically had fewer days of ice per winter than Mirror Lake did.

READING · QUESTION TYPE 10 OF 10 Infinite App question #18717

Double passages: how would Text 2 respond?

TWO PASSAGES

STEPS

1. Read the question first: it asks how the Text 2 critics would respond to the underlined claim in Text 1.
2. Read the underlined claim alone. Then read Text 2 alone.
3. Decide: agree, disagree, or add a factor? Then match.

TIPS

- Text 1's claim: backlash is caused by the art being too bold. Text 2 adds a second cause: the setting.
- "Adds a factor" = "the reactions aren't only caused by the work itself."

WE WORK THIS ONE TOGETHER CROSS-TEXT CONNECTIONS · DIFFICULTY: HARD

Text 1

Good art often challenges and disrupts social and aesthetic norms, but the creation of public art—paintings, sculptures, and performance pieces displayed in nonmuseum or nontheatrical public settings—typically requires broad agreement among artists, civic officials, and community members about the works' message and artistic goals. Public art that fails to appease everyone by being sufficiently aesthetically and conceptually bland almost inevitably provokes backlash.

Text 2

Public art is commonly displayed in spaces intended for purposes other than meaningful aesthetic engagement. Some critics of public art therefore note that norm-defying pieces that aren't effectively integrated within their surroundings in a manner that primes passersby to appreciate the pieces' merits (as is often the case) tend to be regarded more unfavorably than similarly provocative art encountered in museums is.

Based on the texts, how would the critics mentioned in Text 2 most likely respond to the underlined claim in Text 1?

A) By disputing the notion that civic leaders and community members are easily placated by art that is intended mainly to reinforce social norms.

B) By agreeing with the idea that only works of art that are universally appealing are suitable for displaying in public spaces.

C) By arguing that the reason members of the general public might disagree about a public artwork's merits is unrelated to the unconventionality of its appearance and ideas.

D) By contending that the kinds of reactions controversial public artworks often receive aren't exclusively the result of attributes inherent in the works themselves.

GRAMMAR · TOPIC 01 OF 10 Infinite App question #16121

Transition words: name the relationship first

THE RULE IN ONE LINE
Name the relationship between the two sentences first, then pick the transition that does that job.

CAUSATIONS
Therefore · Thus · Consequently · As a result · Hence · **Then**

CONTRADICTIONS
However · But · Yet · By contrast · Nevertheless · Though

THE TRAP
Then is not only about time. Mid-sentence, between commas, it means *therefore*.

WE WORK THIS ONE TOGETHER TRANSITIONS · DIFFICULTY: HARD

In hindsight, given the ideas about the natural world circulating among British scientists in the 1800s, the theory of natural selection was an obvious next step. It may not have been a coincidence, _____ that Charles Darwin and Alfred Wallace arrived at the concept independently. Indeed, contrary to the popular myth of the lone genius, theirs is not the first paradigm-shifting theory to have emerged from multiple scholars working in parallel.

Which choice completes the text with the most logical transition?

A) however,
B) then,
C) moreover,
D) for example,

GRAMMAR · TOPIC 02 OF 10 Infinite App question #31121

Commas in a list — when the items already hold commas

THE RULE IN ONE LINE
A list whose items contain commas is separated by semicolons. Inside each item, the appositive still takes its own commas.

THE SHAPE
*App A, in 2019**;** an experience, Name, in 2022**;** and a museum in 2024.*

THE TEST
Find the three items first. Each boundary between items gets a semicolon; everything inside an item keeps commas.

WE WORK THIS ONE TOGETHER BOUNDARIES · DIFFICULTY: HARD

Dr. Helena Marsh, a leading archaeologist, contributed significantly to the digital preservation of historical sites. She developed the first AR application, History _____ Historic XR, in 2022; and an interactive VR museum in 2024.

Which choice completes the text so that it conforms to the conventions of Standard English?

A) Uncovered, in 2019; an immersive experience,
B) Uncovered in 2019; an immersive experience
C) Uncovered; in 2019, an immersive experience,
D) Uncovered in 2019, an immersive experience;

GRAMMAR · TOPIC 03 OF 10 Infinite App question #14731

Modifiers & dangling modifiers

THE RULE IN ONE LINE
The subject of the sentence must directly follow the opening modifier.

ASK
Who is "knowing that flying insects keep their backs pointed toward sunlight"? The researchers — so *the researchers* must come right after the comma.

CHECK IT
CORRECT Knowing X, **the researchers** theorize … **WRONG** Knowing X, **moths** mistake …

WE WORK THIS ONE TOGETHER FORM, STRUCTURE, AND SENSE · DIFFICULTY: HARD

Entomologists Yash Sondhi and Samuel Fabian have tried to explain why moths fly erratically around light sources at night. Knowing that flying insects keep their backs pointed toward sunlight during the day, _____

Which choice completes the text so that it conforms to the conventions of Standard English?

A) the researchers' theory is that moths mistake nighttime lights for the Sun, continually trying to reorient their bodies while flying near such lights.

B) the researchers theorize that moths, mistaking nighttime lights for the Sun, continually try to reorient their bodies while flying near such lights.

C) moths mistake nighttime lights for the Sun and continually try to reorient their bodies while flying near such lights, the researchers theorize.

D) the nighttime lights cause moths to continually try to reorient their bodies as they fly nearby, mistaking these lights for the Sun.

GRAMMAR · APPOSITIVES Infinite App question #20911

Appositives: title + name

THE RULE IN ONE LINE
If the name is needed to identify the person, it is essential and takes no commas. Never leave one comma.

ESSENTIAL → NO COMMAS
the director thanked architect Maya Chen — without the name, "thanked architect" identifies no one.

THE TRAP
A single comma ("architect, Maya Chen") or a colon after "thanked" both break the verb from its object.

WE WORK THIS ONE TOGETHER BOUNDARIES · DIFFICULTY: HARD

At the museum's ribbon-cutting, the director thanked _____ for designing the new wing, a light-filled space that doubles as a community gallery.

Which choice completes the text so that it conforms to the conventions of Standard English?

A) architect, Maya Chen

B) architect: Maya Chen

C) architect, Maya Chen,

D) architect Maya Chen

GRAMMAR · PARTICIPLES & THE MAIN VERB Infinite App question #13707

Participles & the main verb

THE RULE IN ONE LINE
A bare -ing form cannot carry tense by itself. Find the verb that already carries tense before filling the blank; everything else is a modifier.

HOW TO RUN IT
Skeleton: "Richard Serra _____ … **assembles** large-scale steel plates." The verb *assembles* is already there, so the blank must be a modifier set off by commas — not a second verb.

WE WORK THIS ONE TOGETHER FORM, STRUCTURE, AND SENSE · DIFFICULTY: HARD

American abstract artist Richard _____ his installations to make passersby keenly aware of how one's movements are affected by the physical features of one's environment, assembles large-scale steel plates into sculptures that dominate the outdoor spaces they occupy.

Which choice completes the text so that it conforms to the conventions of Standard English?

A) Serra is intending
B) Serra, intends
C) Serra, intending
D) Serra intends

GRAMMAR · TOPIC 04 OF 10 Infinite App question #17099

Conjunctions: FANBOYS

THE RULE IN ONE LINE
Comma + FANBOYS joins two independent clauses. When *and* joins two nouns, there is no comma at all.

THE SEVEN
For · And · Nor · But · Or · Yet · So

THE TEST
What is on each side of "and"? Two full sentences → comma + and. Two nouns or phrases → no comma.

WE WORK THIS ONE TOGETHER BOUNDARIES · DIFFICULTY: HARD

The parks of Dallas, Texas, seem to be making people happier. In a 2022 study, researchers studying connections between the physical location in which a social media post was _____ analyzed geotagged social media posts from various locations in Dallas. They found that posts from the city's parks contained more words associated with happiness than other posts did.

Which choice completes the text so that it conforms to the conventions of Standard English?

A) created, and the post's content
B) created and the post's content
C) created, and the post's content,
D) created and the post's content,

GRAMMAR · TOPIC 05 OF 10 Infinite App question #14058

Semicolons & colons

THE RULE IN ONE LINE
A colon can follow a complete clause to introduce an explanation. A semicolon can join two independent clauses.

COLON
"... confers both benefits and obligations**:** while the members are bound to defend Canada, the reverse is also true." The clause after the colon explains what the benefits and obligations are.

THE TRAP
B and D omit *while*. Without it, "the organization's many members ... are all bound to defend Canada, the reverse is also true" is two independent clauses joined by a comma — a comma splice.

WE WORK THIS ONE TOGETHER BOUNDARIES · DIFFICULTY: HARD

For Canada, a member of the North Atlantic Treaty Organization (NATO) since 1949, NATO's principle of collective defense confers both benefits and _____ organization's many members, nations as disparate as the US and Slovenia, are all bound to defend Canada, the reverse is also true.

Which choice completes the text so that it conforms to the conventions of Standard English?

A) obligations: while the
B) obligations; the
C) obligations, while the
D) obligations. The

GRAMMAR · TOPIC 06 OF 10 Infinite App question #18434

Dashes & parentheses: match the pair

THE RULE IN ONE LINE
A single dash introduces a detail; a pair of dashes encloses an aside. When punctuation is nested, the inner pair closes first, then the outer.

FIND THE OPENER
"principles of postmodern dance**—**which demystifies ... (such as clumsiness, weightiness, resistance, and gravity)" — the first dash opened a long aside. It has to close.

THE SKELETON
"Wind has been recognized for bringing the principles of postmodern dance ... to video." Everything between the dashes is removable.

WE WORK THIS ONE TOGETHER BOUNDARIES · DIFFICULTY: HARD

Conceptual artist Joan Jonas's first work, *Wind* (1968), is a silent film depicting people on a beach struggling to move about in extremely windy conditions. *Wind* has been recognized for bringing the principles of postmodern dance—which demystifies traditional choreography by foregrounding features of movement that ballet and other classical dance forms obscure (such as clumsiness, weightiness, resistance, and _____ to video.

Which choice completes the text so that it conforms to the conventions of Standard English?

A) gravity),
B) gravity);
C) gravity)—
D) gravity)

GRAMMAR · TOPIC 07 OF 10 Infinite App question #11352

Subject–verb agreement

THE RULE IN ONE LINE
Find the subject. A gerund phrase ("Studying these neighbors") is singular.

THE TRAP
"neighbors" and "astronomers" are plural nouns sitting near the verb — neither is the subject.

CHECK IT
"**Studying** these celestial neighbors **helps** astronomers" — the activity is one thing.

WE WORK THIS ONE TOGETHER FORM, STRUCTURE, AND SENSE · DIFFICULTY: HARD

Smaller than typical galaxies, dwarf galaxies contain just a few billion stars. The Large and Small Magellanic Clouds, visible from the Southern Hemisphere, are two proximate examples. Studying these celestial neighbors _____ astronomers discern galactic formation and evolution processes.

Which choice completes the text so that it conforms to the conventions of Standard English?

A) help
B) have helped
C) are helping
D) helps

GRAMMAR · TOPIC 08 OF 10 Infinite App question #18730

Comparisons: like with like

THE RULE IN ONE LINE
Identify the noun that *that* replaces, then compare the same feature on both sides. Here the stem names it outright: the direct imaging method's zone of discovery.

THE MOVE
"Compared to the direct imaging method's zone of discovery, _____" → the blank must open with the other method's zone: the **radial velocity method's zone of discovery**. When the stem says "that of X," replace *that* with the noun it stands for first.

CROSS OUT
Any choice whose first noun is a method, or exoplanets, or a detection — those are not a quality.

WE WORK THIS ONE TOGETHER FORM, STRUCTURE, AND SENSE · DIFFICULTY: HARD

The exoplanet Pi Mensae d was discovered using an indirect approach to planetary detection, the radial velocity method. Compared to the direct imaging method's zone of discovery, _____ the effect these exoplanets have on nearby stars.

Which choice completes the text so that it conforms to the conventions of Standard English?

A) the detection of distant exoplanets, too dim to be observed in the radial velocity method's vast zone of discovery, is based on
B) the radial velocity method's zone of discovery is vast, as distant exoplanets too dim to be observed are detected by
C) the radial velocity method, with its vast zone of discovery, detects exoplanets that are too dim to be observed by
D) distant exoplanets too dim to be observed are detected within the radial velocity method's vast zone of discovery through

GRAMMAR · TOPIC 09 OF 10 Infinite App question #18627

Apostrophes: possession vs. plural

THE RULE IN ONE LINE
Singular and irregular plural owners take ’s (the child’s, the children’s). A plural ending in s puts the apostrophe after the s (nanoparticles’). The owned thing never gets an apostrophe.

THE SUBSTITUTION
“leverage palladium nanoparticles’ properties” → “leverage *their* properties.” Possessive, plural owner.

ITS VS. IT’S
Its is possessive. *It’s* means it is. *Its’* does not exist.

WE WORK THIS ONE TOGETHER FORM, STRUCTURE, AND SENSE · DIFFICULTY: HARD

Working on an unimaginably small scale of billionths of a meter, nanoengineers have found ways to leverage palladium _____ to facilitate energy generation in fuel cells.

Which choice completes the text so that it conforms to the conventions of Standard English?

A) nanoparticles properties
B) nanoparticle’s properties
C) nanoparticles’ properties’
D) nanoparticles’ properties

GRAMMAR · TOPIC 10 OF 10 Infinite App question #16016

Quotations: punctuation outside the quote

THE RULE IN ONE LINE
Periods and commas go inside the quotation marks. Semicolons and colons go outside. A quote that ends a full sentence can be followed by a semicolon if a full sentence follows.

THE TEST
Left: “... an author who has ... ‘produced the most outstanding work in an idealistic direction’” — a complete sentence. Right: “in 1909, for instance, judges recognized ...” — a complete sentence. Two sentences → semicolon, placed **outside** the closing quote.

THE TRAP
A comma inside the quote (direction,”) would try to join two sentences with a comma — a splice.

WE WORK THIS ONE TOGETHER BOUNDARIES · DIFFICULTY: HARD

Each year, the Nobel Prize in Literature is given to an author who has, in the words of its founder Alfred Nobel, “produced the most outstanding work in an idealistic _____ in 1909, for instance, judges recognized Selma Ottilia Lovisa Lagerlöf “[for] the lofty idealism, vivid imagination and spiritual perception that characterize her writings.”

Which choice completes the text so that it conforms to the conventions of Standard English?

A) direction” and,
B) direction”;
C) direction”
D) direction,”

LAST 16 HOURS

Test day · Saturday, November 7

Tonight, then tomorrow morning

TONIGHT

- Re-read the four map pages and only the problems you marked.
- Pack admission ticket, photo ID, a charged device and its charger, two pencils.
- No new practice test. Learning stops; recall starts.
- In bed by 10:30 — sleep is a scoring strategy.

TOMORROW MORNING

- Eat protein, not just sugar.
- Arrive 30 minutes early; find your room first.
- Open Desmos before Math question 1.
- Answer every question — flag, never blank.
- Module 2 feels hard? You earned it. Keep going.

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