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Study abroad, made simple

ACT Practice Paper 8

English | Maths | Reading | Science

Section-wise answer keys with explanations

About This Paper

This is a Yocket original practice paper that follows the structure of the ACT. It contains 50 questions across four sections. Every passage and question is written by Yocket, so you can attempt it as a timed mock.

Section	Questions	Suggested time	What it tests
1. English	15	11 minutes	Grammar, punctuation, sentence structure, rhetorical skills
2. Maths	15	17 minutes	Algebra, geometry, statistics, probability, trigonometry
3. Reading	10	11 minutes	Main idea, detail, inference, vocabulary in context
4. Science	10	10 minutes	Reading tables, spotting variables, drawing conclusions

Suggested times follow the per-question pace of the full ACT sections, scaled down to this shorter paper.

How to Use It

- **Set a timer:** attempt each section in one sitting and stop when the suggested time ends.
- **Work on paper:** circle your answers, and keep the answer key closed until you finish the section.
- **Review every miss:** the key explains the reasoning, so you learn the method and not only the answer.
- **Treat your score as a diagnostic:** a short paper cannot produce an official ACT scale score, so use it to find your weak sections.

Section 1

English

15 questions | Suggested time: 11 minutes | Choose the best answer for each underlined portion or question. Choose NO CHANGE if the underlined portion is already correct.

Passage I: Rainwater Harvesting

Rainwater harvesting means collecting rain from roofs and storing it for later use. In dry regions, households **[1]**that stores the water in tanks can water gardens, flush toilets, and wash clothes during months without rain. A basic system needs three parts: a clean roof, gutters to channel the water, and **[2]**storing it in a tank.

Rainwater is not safe to drink without treatment, because roofs collect bird droppings, dust, and leaves. The water must be filtered **[3]**first before it enters the tank. **[4]** **[5]**

1.

- **A.** NO CHANGE
- **B.** who is storing
- **C.** that store
- **D.** which stores

2.

- **A.** NO CHANGE
- **B.** a tank is where it is stored
- **C.** to store it in a tank
- **D.** a tank

3.

- **A.** NO CHANGE
- **B.** firstly before
- **C.** first, before then
- **D.** before

4. Which choice best adds a specific benefit of harvesting rainwater?

- **A.** A 100 square metre roof can collect up to 100,000 litres in a year where one metre of rain falls.
- **B.** Some people prefer to drink bottled water.
- **C.** Tanks are available in many sizes and colours.
- **D.** Rain falls from clouds that form when water vapour cools.

5. Which choice best concludes the passage?

- **A.** Dry months occur in many parts of the world.
- **B.** Roofs are made of tiles, metal, or concrete.
- **C.** Gardens need more water than lawns.
- **D.** For a modest cost, a household can turn each storm into a small reserve for the dry months.

Passage II: First Flight

The small plane shook as it left the runway, and Hana gripped the armrest **[6]**so tight that her knuckles whitened. From the seat beside her, Uncle Reza pointed at the window. Hana looked down and **[7]**sees the fields laid out like a patchwork quilt. **[8]**

The river**[9]**which wound through the valley glittered like a strip of foil. **[10]**

6.

A. NO CHANGE
B. such tight
C. so tighter
D. so tightly

7.

A. NO CHANGE
B. has seen
C. saw
D. will see

8. Which choice best shows the change in Hana's feelings?

A. Her grip loosened, and for the first time since take-off she smiled.
B. The plane had two propellers and eight seats.
C. The window was slightly scratched.
D. Uncle Reza had flown this route many times.

9.

A. NO CHANGE
B. which wound through the valley,
C. , which wound through the valley,
D. , which wound through the valley

10. Which choice best ends the passage?

A. Uncle Reza collected the luggage from the back.
B. When the wheels touched the ground, Hana was surprised to find that she wished the flight had been longer.
C. The airstrip was a flat strip of dirt beside the road.
D. The plane would leave again the next morning.

Passage III: The Story of Zero

Zero seems so simple that it is easy to forget it was invented. Brahmagupta**[11]**, an Indian mathematician, wrote rules for arithmetic with zero in the seventh century. **[12]**

Fibonacci's book of 1202 **[13]**did the job of introducing the Hindu-Arabic numerals to European merchants. Merchants welcomed the new numbers**[14]**, they made calculation faster than Roman numerals. **[15]**

11.

A. NO CHANGE
B. an Indian mathematician,
C. , an Indian mathematician
D. an Indian mathematician

12. Which choice best gives specific detail about Brahmagupta's rules?

A. He stated, for example, that a number added to zero stays the same, and that a number multiplied by zero becomes zero.
B. Zero is written as a circle in most systems.
C. He lived at a time of great change in India.
D. Many mathematicians wrote about numbers.

13.

A. NO CHANGE
B. introduced
C. made an introduction of
D. did the work of introducing

14.

A. NO CHANGE
B. ; because, they
C. because they
D. : because they,

15. Which choice best concludes the passage?

A. Numbers can be written in many scripts.
B. Roman numerals are still used on some clocks.
C. Today, the symbol that once troubled scholars is part of every calculation a computer performs.
D. Merchants travelled widely in medieval Europe.

Answer Key: Section 1, English

Mark your paper, then count your correct answers. Read the explanation for every question you missed or guessed.

Q	Answer	Why it is correct
1	**C**	The subject *households* is plural, so the verb is *store*.
2	**D**	The list needs parallel noun phrases: *a roof, gutters, and a tank*.
3	**D**	*First before* repeats the idea of order. *Before* alone is enough.
4	**A**	It gives a concrete figure that shows the benefit. The others are general or off topic.
5	**D**	It sums up the main benefit. The others add unrelated facts.
6	**D**	An adverb is needed to describe how she gripped.
7	**C**	The passage is in the past tense, so *saw* is needed.
8	**A**	It shows her fear turning to enjoyment. The others are neutral details.
9	**C**	A non-essential clause needs a comma before and after it.
10	**B**	It completes the change from fear to enjoyment that the passage builds.
11	**A**	A non-essential appositive needs a comma before and after it.
12	**A**	It gives specific rules. The others are general.
13	**B**	*Introduced* says the same thing in fewer words.
14	**C**	*Because* joins the reason to the main clause without extra punctuation. The original is a comma splice.
15	**C**	It closes the history by linking it to the present.

Your score: _____ / 15

13 to 15 correct: strong. **9 to 12:** review the missed topics. **Below 9:** revisit the basics before your next paper.

Section 2

Maths

15 questions | Suggested time: 17 minutes | Solve each problem and choose the best answer. A calculator is allowed. Figures are not necessarily drawn to scale.

1. What is 3/4 + 5/6?

A. 15/24
B. 8/10
C. 4/3
D. 19/12

2. What is the value of x if 3(2x − 1) = 15?

A. 2
B. 3
C. 4
D. 5

3. After a 20% discount, a bag costs $64. What was the original price?

A. $51.20
B. $76.80
C. $80
D. $84

4. What is the distance between the points (−3, 4) and (5, −2)?

A. 6
B. 8
C. 10
D. 14

5. The mean of five numbers is 20. Four of the numbers are 12, 18, 22, and 25. What is the fifth number?

A. 19
B. 20
C. 21
D. 23

6. What is the area of the triangle with vertices (0, 0), (8, 0), and (0, 6)?

A. 14
B. 24
C. 28
D. 48

7. Blue and yellow paint are mixed in the ratio 2 : 3 to make 15 litres. How many litres of blue paint are used?

A. 5
B. 6
C. 9
D. 10

8. How many different arrangements are there of the letters in the word LEVEL?

A. 20
B. 30
C. 60
D. 120

9. How many distinct real solutions does $x^2 - 8x + 16 = 0$ have?

A. 0
B. 1
C. 2
D. 4

10. If $3x - 2y = 7$ and $x + y = 4$, what is the value of $x - y$?

A. 1
B. 2
C. 3
D. 4

11. If $f(x) = 3^x$, what is $f(4) - f(2)$?

A. 18
B. 27
C. 72
D. 81

12. A circle has a radius of 6 cm. What is the length of an arc with a central angle of 60°?

A. 12π cm
B. 6π cm
C. 2π cm
D. π cm

13. A printer prints 24 pages per minute. How long will it take to print 1,800 pages?

A. 7.5 minutes
B. 60 minutes
C. 75 minutes
D. 90 minutes

14. If θ is acute and $\tan \theta = 1$, what is $\sin \theta$?

A. √2/2
B. 1
C. 1/2
D. √3/2

15. A fair coin is tossed 3 times. What is the probability of getting at least one head?

A. 1/8
B. 1/2
C. 3/4
D. 7/8

Answer Key: Section 2, Maths

Mark your paper, then count your correct answers. Read the explanation for every question you missed or guessed.

Q	Answer	Why it is correct
1	**D**	Use a common denominator of 12: 9/12 + 10/12 = 19/12.
2	**B**	Divide by 3: 2x − 1 = 5, so 2x = 6 and x = 3.
3	**C**	The sale price is 80% of the original, so the original is 64 ÷ 0.8 = $80.
4	**C**	Distance = $\sqrt{(8^2 + 6^2)} = \sqrt{100} = 10$.
5	**D**	The total is 100. The four known numbers add to 77, so the fifth is 23.
6	**B**	Base 8 and height 6 give an area of (1/2)(8)(6) = 24.
7	**B**	Blue is 2/5 of the mixture, and 2/5 of 15 is 6.
8	**B**	There are 5 letters with L and E each repeated twice: 5! ÷ (2! × 2!) = 120 ÷ 4 = 30.
9	**B**	The expression factorises as $(x - 4)^2 = 0$, so there is one repeated solution, x = 4.
10	**B**	Substitute y = 4 − x: 3x − 8 + 2x = 7, so x = 3 and y = 1. Then x − y = 2.
11	**C**	f(4) = 81 and f(2) = 9, so the difference is 72.
12	**C**	Arc length = (60/360) × 2π × 6 = 2π.
13	**C**	1,800 ÷ 24 = 75 minutes.
14	**A**	tan θ = 1 means θ = 45°, and sin 45° = √2/2.
15	**D**	P(no heads) = $(1/2)^3$ = 1/8, so P(at least one head) = 7/8.

Your score: _____ / 15

13 to 15 correct: strong. **9 to 12:** review the missed topics. **Below 9:** revisit the basics before your next paper.

Section 3

Reading

10 questions | Suggested time: 11 minutes | Read each passage and choose the best answer to each question based on what is stated or implied.

Passage I: Handwriting in the Digital Age (Humanities)

As keyboards replace pens, some educators worry that handwriting is disappearing. Others argue that it was never as important as it once seemed. The debate rests on what handwriting actually does for a learner.

Research on note-taking offers some evidence. In several studies, students who wrote notes by hand tended to rephrase what they heard, because they could not write fast enough to copy it word for word. Students typing on laptops often transcribed lectures almost verbatim. The hand-writers, in turn, performed better on later conceptual questions. However, other researchers have been unable to reproduce this result consistently, and the size of the effect may be smaller than first reported.

What is clearer is that the early practice of forming letters by hand helps young children learn to recognise them. Brain-imaging studies show more activity in reading-related regions after children write letters than after they type them. Few educators now propose abandoning keyboards. The more realistic question is when to teach each skill, and how to ensure that children master both.

1. Which choice best states the main idea of the passage?

- **A.** Handwriting should be removed from schools.
- **B.** Handwriting may offer learning benefits, but the evidence is mixed, and the practical question is how to teach both skills.
- **C.** Typing has been proven to be better than handwriting.
- **D.** Children learn to read only by writing by hand.

2. According to the passage, students who typed their notes often:

- **A.** rephrased everything they heard.
- **B.** avoided taking notes.
- **C.** transcribed lectures almost word for word.
- **D.** performed better on conceptual questions.

3. Why did students who wrote by hand tend to rephrase what they heard?

- **A.** They were told to summarise.
- **B.** They had better memories.
- **C.** They could not write fast enough to copy word for word.
- **D.** They disliked the lecturer.

4. According to the passage, other researchers have:

- **A.** stopped studying note-taking.
- **B.** found that typing is always better.
- **C.** proven the original result correct.
- **D.** been unable to reproduce the note-taking result consistently.

5. The final paragraph suggests that the debate is shifting toward:

- **A.** which skill children find easier.
- **B.** whether to ban keyboards.
- **C.** when and how to teach both handwriting and typing.
- **D.** how fast children can type.

Passage II: Islands Born of Fire (Natural Science)

Some islands are not carved from older land but built from nothing. Hawaii, Iceland, and the Canary Islands all began as eruptions on the seafloor, where lava piled up, layer on layer, until the heap broke the surface. Because the base lies far below the waves, such an island can be far taller than it appears; measured from the ocean floor, Hawaii's Mauna Kea rises more than ten kilometres.

Many volcanic islands form over hot spots, plumes of unusually hot rock rising from deep inside the Earth. The tectonic plate drifts slowly over the stationary plume, so a chain of islands forms as the plate carries each volcano away from its heat source. The oldest islands lie at one end of the chain, worn low by waves; the youngest lie at the other, still active.

New life arrives slowly. Seeds drift in on currents, cling to birds' feathers, or travel in their droppings; insects ride storms. Because arrivals are rare and the islands are isolated, the species that settle often evolve into forms found nowhere else. Darwin's finches on the Galápagos are a well-known example, although the Galápagos themselves are only one of many island groups where isolation has produced unique wildlife.

6. According to the passage, volcanic islands begin as:

- **A.** icebergs.
- **B.** coral reefs.
- **C.** pieces of older land.
- **D.** eruptions on the seafloor.

7. The passage says Mauna Kea rises more than ten kilometres when measured from:

- **A.** the ocean floor.
- **B.** the nearest island.
- **C.** sea level.
- **D.** the island's coast.

8. In a hot-spot island chain, the oldest islands:

- **A.** are the most active.
- **B.** are the tallest.
- **C.** lie at one end of the chain and are worn low by waves.
- **D.** lie directly above the plume.

9. Why do species on remote islands often evolve into forms found nowhere else?

- **A.** Islands have no predators.
- **B.** Species are brought in by ships.
- **C.** Volcanic soil changes their genes.
- **D.** Arrivals are rare and the islands are isolated.

10. As used in the first paragraph, “heap” most nearly means:

A. pile.
B. crater.
C. wave.
D. storm.

Answer Key: Section 3, Reading

Mark your paper, then count your correct answers. Read the explanation for every question you missed or guessed.

Q	Answer	Why it is correct
1	**B**	The passage describes mixed evidence and ends on how to teach handwriting and typing.
2	**C**	The second paragraph says typists often transcribed almost verbatim.
3	**C**	The passage gives this reason in the second paragraph.
4	**D**	The second paragraph says other researchers have not been able to reproduce the result consistently.
5	**C**	It says the more realistic question is when to teach each skill and how to ensure mastery of both.
6	**D**	The first paragraph says they began as eruptions on the seafloor.
7	**A**	The first paragraph says it is measured from the ocean floor.
8	**C**	The second paragraph says the oldest islands are worn low, at one end of the chain.
9	**D**	The third paragraph links rare arrivals and isolation to unique species.
10	**A**	The lava piled up layer on layer into a heap, meaning a pile.

Your score: _____ / 10

9 to 10 correct: strong. **6 to 8:** review the missed topics. **Below 6:** revisit the basics before your next paper.

Section 4

Science

10 questions | Suggested time: 10 minutes | Each passage is followed by questions. Refer to the passage and tables as needed. A calculator is allowed.

Passage I: Colour and Heat Absorption

Students wrapped identical cans of 200 mL of water at 20 °C in paper of different colours. They placed each can under a lamp for 15 minutes and then measured the water temperature.

Experiment 1: The lamp was 20 cm from each can. The results appear in Table 1.

Experiment 2: The students used black paper and changed the distance of the lamp. The results appear in Table 2.

Table 1

Paper colour	Final temperature (°C)
Black	34
Red	31
Green	29
White	25

Table 2

Lamp distance (cm)	Final temperature (°C)
10	40
20	34
30	28
40	24

1. According to Experiment 1, the water became hottest in the can wrapped in which colour?

A. Green
B. Red
C. White
D. Black

2. In Experiment 1, by how much did the temperature of the water in the white can rise?

A. 25 °C
B. 5 °C
C. 9 °C
D. 14 °C

3. Which variable was kept constant in Experiment 1?

A. The starting temperature of the water
B. The final temperature
C. The heat absorbed by the can
D. The colour of the paper

4. In Experiment 2, as the lamp moved farther away, the final temperature:

A. decreased.
B. increased.
C. increased and then decreased.
D. stayed the same.

5. Based on both experiments, which setup would most likely heat the water the most?

- **A.** White paper with the lamp 10 cm away
- **B.** Black paper with the lamp 40 cm away
- **C.** Red paper with the lamp 30 cm away
- **D.** Black paper with the lamp 10 cm away

Passage II: An Enzyme in Potato

Potato contains an enzyme that breaks down hydrogen peroxide into water and oxygen. Students placed potato pieces in hydrogen peroxide and measured the height of the oxygen foam after 2 minutes.

Experiment 1: The students used 3 g of potato in solutions of different pH. The results appear in Table 3.

Experiment 2: The students kept the solution at pH 7 and changed the mass of potato. The results appear in Table 4.

Table 3

pH	Foam height (mm)
3	4
5	22
7	48
9	30
11	6

Table 4

Potato mass (g)	Foam height (mm)
1	17
2	33
3	48
4	62

6. According to Experiment 1, which pH produced the greatest foam height?

- **A.** 3
- **B.** 7
- **C.** 5
- **D.** 11

7. In Experiment 1, how much taller was the foam at pH 9 than at pH 5?

- **A.** 8 mm
- **B.** 18 mm
- **C.** 26 mm
- **D.** 4 mm

8. In Experiment 1, as the pH rose from 7 to 11, the foam height:

- **A.** decreased.
- **B.** stayed the same.
- **C.** increased.
- **D.** increased and then decreased.

9. In Experiment 2, as the mass of potato increased, the foam height:

- **A.** increased and then decreased.
- **B.** increased.
- **C.** stayed the same.
- **D.** decreased.

10. Which conclusion is best supported by both experiments?

A. Enzyme activity rises steadily as pH increases.
B. Potato mass has no effect on foam height.
C. The enzyme works equally well at every pH.
D. The enzyme works best near a neutral pH, and more potato produces more foam.

Answer Key: Section 4, Science

Mark your paper, then count your correct answers. Read the explanation for every question you missed or guessed.

Q	Answer	Why it is correct
1	**D**	Table 1 shows 34 °C for black, the highest value.
2	**B**	25 °C minus 20 °C is 5 °C.
3	**A**	Every can started at 20 °C. The colour was the variable, and the final temperature was the result.
4	**A**	The temperature falls from 40 °C to 24 °C.
5	**D**	Black paper absorbs the most heat (Table 1), and a closer lamp gives a higher temperature (Table 2).
6	**B**	Table 3 shows 48 mm at pH 7, the highest value.
7	**A**	30 mm minus 22 mm is 8 mm.
8	**A**	The foam falls from 48 mm to 6 mm.
9	**B**	The foam rises from 17 mm to 62 mm.
10	**D**	Table 3 shows a peak at pH 7, and Table 4 shows foam rising with potato mass.

Your score: _____ / 10

9 to 10 correct: strong. **6 to 8:** review the missed topics. **Below 6:** revisit the basics before your next paper.

Your Next Steps

Add up your four section scores and note which section cost you the most marks. Spend your next study week on that section, then attempt a fresh paper under timed conditions.

Section	Your score	Out of
English	_____	15
Maths	_____	15
Reading	_____	10
Science	_____	10
Total	_____	**50**

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