JOHN BAYLOR
TEST·PREP

2013-2014 Online ACT PREP

DON'T SETTLE!

Get Into the Best College For You at the Lowest Cost!

Jumping Your Score: the Best Paying Job a High School Student Could Ever Have!

John Baylor, Stanford, 1988

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Mission Statement

This course is about results. *John Baylor Test Prep's* goal is to improve your score. If history is a guide, your score will improve--a lot.

We also want you to have plenty of choices for college. We'll familiarize you with the college application process, so you'll be equipped to turn your higher score into the **Best College for You at the Lowest Cost**. As long as you **attend class**, **pay attention**, and **do the homework**, you'll benefit significantly.

The 5 Sections

1.	English	75 questions	45 minutes
2.	Math	60 questions	60 minutes
3.	Reading	40 questions	35 minutes
4.	<u>Science Reasoning</u>	<u>40 questions</u>	<u>35 minutes</u>
	total	215 questions	175 minutes (nearly 3 hours)
5.	Writing	**Optional** (but probably take it once or twice if applying to out-of-state colleges)	30 minutes

All multiple choice. Good news: only four choices per question, except for Math, which has five.

Make a choice for each question.

Should I read the directions? In life —always. On the ACT —don't spend the valuable time. You'll soon know this test and its directions cold.

Scoring: 1 to 36.

When should I take the ACT?
Take the ACT **at least twice** junior year and twice senior fall – *the December ACT is typically the final one colleges will consider for admissions and financial aid.*

Circle four:

Jr Year: Sept Oct Dec Feb Apr June / **Sr Year:** Sept Oct Dec

YOUR *ATTITUDE* DETERMINES YOUR *ALTITUDE: ATTACK*

ACT English tests pronouns, comma usage, verb tenses, punctuation, idioms, some vocabulary, and other grammar rules. Cheer up –all of this is important in life (accuracy in language is a <u>noble</u> cause); JBTP will end all relevant grammar uncertainties in your mind. Yes, you will soon know all English grammar. Fire up!

<u>*Grammar Questions:*</u> about (80%) of the questions within the ACT English section.

<u>*The JBTP Grammar Rules*</u>

GR 1. **<u>Less is More.</u>**
      a. Go with the shortest answer unless the shortest is horrible.

GR 2. **<u>Honor thy commas.</u>**
      a. Exaggerate the pause and the inflection change.

GR 3. **<u>A Full Sentence: has three components.</u>**
      a. A subject — The **dog** sought shelter from the storm.
      b. A verb — Mary proudly **carried** her bucket of fish.
      c. A complete thought — **Bobby yelled**.

GR 4. **<u>Subject – Verb agreement: subjects agree with their verbs in number</u>** (singular or plural)**.**
      a. The **butterfly is** colorful.
      b. The **friends are** together.
      c. When there is a **single word underlined, it's probably a verb.** Every verb has a subject. When hunting down the subject, slash the prepositional phrase.

GR 5. **<u>Each, none, neither, either, anyone, anybody, someone, everyone, everybody: are singular.</u>**
      a. **Each** of the boys **has / have** arrived.   b. **Neither** of the teams **is / are** any good.
      c. **None** of them **whines / whine** about homework.   d. **Neither** of the cars **gets / get** good gas mileage.

GR 6. **<u>Apostrophes: show possession.</u>**
      a. If one owner: **'s**.   one **son's** coin collection   one **girl's** sleds
      b. If more than one owner: **s'**.   two **sons'** coin collection   two **girls'** sled
      c. **men's, women's, children's, and people's** are always **'s**.

GR 7. **<u>Contractions.</u>**
      a. Always say both words: it's, you've, you're, they've, we've, he's, they're, who's, etc…
      b. Impact: contractions are less formal, less emphatic, and less urgent.
      c. Who's v. Whose
            i. There's the guy, **who's / whose** an achiever, not a slacker.
            ii. There's the guy, **who's / whose** effort should lead to many scholarships.

GR 8. **<u>Semicolons, colons, and dashes.</u>**
      a. Semi-colon   ;   =   , and   **(bracketed by two complete thoughts)**.
      b. Colon   :   =   example(s) to follow   **(a complete thought precedes a colon)**.
      c. Hyphen or dash   -   =   a comma or <u>a colon</u>.

GR 9. Your **principal** goal is to please your **principal**, your Pal. Your **principles** are your bedrock, heart-felt values.
            i. Graduating from college at a low cost is my **principal / principle** goal.
            ii. My **principals / principles** won't let me do that.

Effect is a noun while to **affect** is a verb
      i. Your higher score should **affect / effect** the number of family hugs.
      ii. Apathy will have an adverse **affect / effect** on your future.

GR 10. <u>**How to put two sentences into one sentence**</u> (<u>two independent clauses or complete thoughts into one sentence</u>).
    a. Full sentence; full sentence. (____; ____)   b. Full sentence, **and** full sentence. (____, and ____)
      i. Ed went to the store, **and** he bought some gum.

GR 11. <u>**Irregular verbs:**</u>
    a. Determine the tense, and then plug it into these sentences:
      i. **Today I <u>present tense</u>.**   Today I **sing** songs.
      ii. **Yesterday I <u>past tense</u>.**   Yesterday I **sang** songs.
      iii. **For years I have <u>perfect tense</u>.**   For years I **have sung** songs.
        & Perfect = Past Perfect (For years, I **have run** the store. As of last week, I **had run** the store for years.)

<u>b. Tough ones to remember.</u>

bend	bent	have bent	meet	met	have met
break	broke	have broken	ride	rode	have ridden
bring	brought	have brought	rise	rose	have risen
build	built	have built	run	ran	**have run**
burst	burst	have burst	seek	**sought**	**have sought**
cast	**cast**	**have cast**	shine	shined/shone	shined/shone
choose	chose	have chosen	shrink	shrank	**have shrunk**
cling	clung	have clung	slide	slid	**have slid**
dive	dived/dove	have dived	stride	strode	**have stridden**
forego	forewent	have foregone	sweep	swept	have swept
fling	flung	have flung	swim	swam	**have swum**
hang	hung	have hung	swing	swung	have swung
lend	lent	have lent	write	wrote	have written

GR 12. <u>**Prepositions.**</u>

a. about	above	across	after	against	around	along	among	<u>**at**</u>	behind
before	beneath	beside	<u>**between**</u>	beyond	<u>**by**</u>	<u>**down**</u>	<u>**during**</u>	except	for
from	in	near	of	off	on	opposite	out	outside	over
past	regarding	round	since	<u>**to**</u>	through	under	underneath	<u>**until**</u>	
up	with	within	without						

    b. Prepositional phrases begin with prepositions and end with nouns, but <u>never have subjects</u>.

GR 13. <u>**Extra information has commas or dashes around it.**</u>
    a. The guy in the red sweater, **my dad**, is flipping pancakes.
    b. Bob, **the fastest runner**, jogged in for the touchdown.

> **However, indeed, in fact, of course, for example, and for instance are always surrounded with commas. And though when = however.**

GR 14. <u>**Parallelism.**</u>
    a. Stay with the trend within the sentence.
      i. She was **walking**, **talking**, and **running** yesterday. ii. She **walked**, **talked**, and **ran** yesterday.

GR 15. <u>**Pronouns.**</u>
- a. It must be clear what the pronoun refers to (must have a clear antecedent).
    - i. **Bob and Jim** went to the mall. **He / they** bought some jeans.
- b. Must agree in number and gender with its antecedent.
    - i. **Sally and George** have a happy marriage. **They** are friends of ours.
- c. Get rid of the names around the pronoun: <u>**isolate the pronoun**</u>.
    - i. Give the books to **Ed, Rod, Barb, and** me / I.
    - ii. Please come to the library with **Ralph, Myrtle, Hallie, and** me / I.
- d. Think of something identical that you do understand: great as a final resort when torn between two.
    - i. This is just **between you and me / I**.
- e. Comparisons with a pronoun at the end: just add the verb in your head.
    - i. Margie **is faster than** him / he. (   )   ii. They aren't **as prepared as** us / we. (   )
- f. the verb 'to be': **am, is, are, was, were, has been, had been, could (should, would, might, must)**
    be, could (should, would, might, must) have been, will be, will have been.
    - i. what precedes the verb 'to be' equals what follows: **He** is the **teacher**.
    - ii. just like in math: if a = b, then b = a.   If the pronoun is after the verb 'to be,' just reverse the order.
        - 1. The class president **will be** her / she.   2. The leaders all year **have been** them / they.
        - 3. That**'s** him/he right there.   4. Hey, that**'s** me / I.
- g. who v. whom:
    - i. Establish that they are dealing with a person or many people.
    - ii. Begin with **who/whom** in the sentence. Take out **who** or **whom**. Plug in **he** or **they**.
        If **he** or **they** works, go with **who**. If neither **he** nor **they** works, go with **whom**.
        - 1) **Who/Whom** is this for?
        - 2) **Who/Whom** gave you that?

GR 16. <u>**Transition Words:**</u>
- a. Two consistent thoughts: **consequently, thus, therefore, because of.**
    - i. He's lazy. **Thus**, he gets mediocre grades.
- b. Two consistent thoughts then magnified: **furthermore, in fact, indeed, moreover.**
    - i. Graduating from college is important. **Moreover**, it's vital.
- c. Two inconsistent thoughts: **conversely, despite, ironically, however, still, though, yet**
    nonetheless, in spite of, nevertheless
    - i. Sally had a terrific interview. **However**, she didn't write a thank you note.

GR 17. <u>**The modifying clause must be next to what it modifies:**</u>
- a. Driving home after dark, **he** proceeded cautiously.
- b. A dedicated cellist, **Rachel** didn't understand her friends who played computer games.

GR 18. <u>**Voice cannot change within a sentence:**</u>
- a. **One** will find that the library is a great place for **you / one** to learn.
- b. If **you** have quit playing an instrument, **you / one** can undo that decision.

GR 19. <u>**Comparing multiple things:**</u>
- a. When comparing two things: use -er, more, or less. When comparing three or more things: use -est, most, or least.
    - i. That's the **faster** car in the parking lot.   vs.   That's the **fastest** car in the parking lot.
    - ii. That's the **less** expensive dress.   vs.   That's the **least** expensive dress.

GR 20. **Non-words:**

   a. irregardless   b. funner   c. where at   d. its'   e. could of   f. preven**ta**tive   g.

GR 21. **Conjunctions**

   neither....nor   i. Identical word order follows each conjunction.
   either....or   He received **neither** the attention deserved **nor** the support required to excel.
   not only....but also   **Either** go to your Grandma's house **or** go to the store.

GR 22. When truly torn between two answers, cross out all the gunk: **prepositional phrases, adjectives, adverbs, and extra info.**

The JBTP Grammar Question Strategy:
   1. Read first time through with 'a':   *'in' or 'out'.*
   2. Reread, plugging in 'b':   *'in' or 'out'.*
   3. Look at shortened version with 'c':   *'in' or 'out'.*
   4. Look at shortened version with 'd':   *'in' or 'out'.*
   5. Get it down to two.
   6. Armed with JBTP's 22 grammar rules, **reread each and make a choice** (circle & bubble).
   7. **Quick-Check™:** reread, plugging in your answer choice.

Content Questions: about ⟨**20%**⟩ of the questions within the ACT English section.

The JBTP Content Question Strategy:
   1. Underline the key words in the question.
   2. Answer the question literally. For example:
      a. Which of the following sentences **contradicts** something previously established within the essay?
      b. Which of the following sentences best **illustrates** the disorganization within the office?
   3. **Get it down to two.** Circle & bubble.
   4. **Quick-Check:** reread the question and your answer choice.

Bonus English Tip
3 keys to being a great writer & story-teller

	1) specifics	so don't be:	1) vague
	2) brevity		2) verbose
and	3) passion	or	3) indifferent

So you're nervous about the *Reading Section* — jump in line. Many JBTP students **empathize** –initially.

There is good news. All **Reading** passages have been published; thus, they should be engaging. However, **Reading** lasts only 35 minutes and has four passages, each trailed by ten questions. That's 8:45 a passage. We need to move. Comprehension during the first read-through is critical.

Attack each passage.

How to read: PUSH THE EYES!
 • Push the eyes is the key to greater speed and comprehension.

The JBTP Strategy: do not preview any questions initially. You don't have the time.
1. Read the intro paragraph above the passage's first paragraph.
2. Read paragraph #1: **UPS** (Underline, Push the Eyes, Summarize).
3. Read and summarize paragraph #2: **UPS**.
4. Finish reading the passage: **UP**.
5. Hammer the questions: slash answers first. Circle & bubble.
6. **QUICK-CHECK**: reread the question and your subsequent answer.
7. When torn between two, **slash the answer that's slightly too extreme**.

For the habitually time-challenged: *Skip the Middle Paragraphs - use only if beginning last passage with ≤ 7 minutes left.*
1. Read and summarize intro, 1st, 2nd, and final paragraphs. **Skip the middle paragraphs.**
2. Hammer the questions: slash answers first.
    i. You'll probably need to go to the text more and circle more question numbers than usual.

Science primarily tests your ability to assess charts, tables, and graphs.

As in Reading, you have 35 minutes for 40 questions. But now rather than four essays, you have seven. That's **five** minutes per passage. We need to move.

Attack each passage.

The JBTP Strategy:
1. Go straight to the questions. Read it, and put your finger on the appropriate chart, table, or graph.
2. Summarize the relationships: 'proportional or inversely proportional.' Use symbols to capture the relationships (+, -, ...).
3. Read what you need.
4. Circle & bubble. Or at least "get it down to two," and then circle & bubble.
5. **QUICK-CHECK**: reread the question and your answer choice, glancing back at the chart if necessary.
6. For the text-only Science Reasoning passages – use the *JBTP Reading Strategy: UPS*.

Remember:
• Understand and use the visual information;
• Even if you are not a science stud, all you need primarily is the capacity to comprehend graphs, visual aids, and their accompanying text;
• Be swift, but thorough.

Time to get confident. ACT math involves basic concepts asked in cunning ways. Just remember to always:

PUDWYK: PUt Down What You Know

i.e. show your work - formulas first

- **PUDWYK:** (1) write down every detail as you read it in each question;
  (2) then work until you hit a dead end;
  (3) then read on.

For example. i. if you read the words **triangle** and **area**, write down:

Area = 1/2 bh; plug in for base, height, or area, and solve any unknowns.

ii. if you see a **right triangle** with a 20 degree angle, write down:

$a^2 + b^2 = c^2$ and fill in all angle degrees.

Because math problems contain only germane, salient information, *PUDWYK* leads you to the answer.

Then:

- **QUICK-CHECK**: rework each question quickly in your head or with your calculator — make sure it's right! Carelessness is your primary foe!

For example. i. <u>plug your answer back into the question. Great for algebra.</u>

If you think x = 6, plug 6 back in for every x. If you think y = 4, plug 4 back in for every y.

or: ii. <u>redo the math in your head</u> (or with your calculator).

The JBTP Strategy
1. **PUDWYK.**
2. **Work clearly** (sloppiness = points).
3. **QUICK-CHECK in your head** (or with your calculator). Circle & bubble.
4. **Get to all 60!**

With practice, each Quick-Check should take ten seconds or fewer.
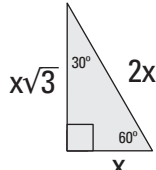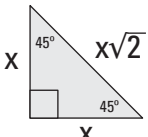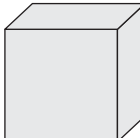
Remember:
1. Focus first on the initial 20 questions; if you miss many you are probably confusing a fundamental geometry formula or algebra technique.
2. **Get the first 10 right.**
3. Our goal is at least 18 right out of the first 20 and 27 out of the first 30. We'll get there.
4. A powerful form of PUDWYK: ***GOOVGIN.***

	△	▢	○
Area	½bh	bh	πr^2
Perimeter/ Circumference	add sides	add sides	$2\pi r$
Degrees	180	360	360

$$a^2 + b^2 = c^2$$

Perfect right triangles

3-4-5	5-12-13	7-24-25	8-15-17

30°–60° triangle: $x\sqrt{3}$, $2x$, x

45°–45° triangle: x, $x\sqrt{2}$, x

Volume

$$V = lwh$$
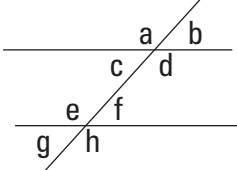
Exponents

$8^2 \cdot 8^4 = 8^6$

$\dfrac{3}{7^{-4}} = \dfrac{3(7^4)}{1}$

$(8^4)^3 = 8^{12}$

$\dfrac{8^2}{8^5} = 8^{-3} = \dfrac{1}{8^3}$

$8^0 = 1$

$\sqrt[4]{3^5} = 3^{5/4}$

Probability $= \dfrac{\text{\# of winners}}{\text{total}}$

$4! = 4 \cdot 3 \cdot 2 \cdot 1$

$a + b = 180$
$f + h = 180$
$a = d = e = h$

angles: a, b, c, d, e, f, g, h

SOH CAH TOA
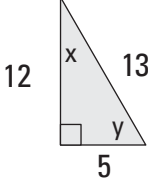
$\sin x = \dfrac{\text{opp}}{\text{hyp}} = \dfrac{5}{13}$

$\tan x = \dfrac{\sin x}{\cos x} = \dfrac{\text{opp}}{\text{adj}} = \dfrac{5}{12}$

$\cos x = \dfrac{\text{adj}}{\text{hyp}} = \dfrac{12}{13}$

$\cot x = \dfrac{\cos x}{\sin x} = \dfrac{\text{adj}}{\text{opp}} = \dfrac{12}{5}$

$\sec x = \dfrac{1}{\cos x} = \dfrac{1}{\text{adj}/\text{hyp}} = 1 \cdot \dfrac{\text{hyp}}{\text{adj}} = \dfrac{13}{12}$

$\csc x = \dfrac{1}{\sin x} = \dfrac{1}{\text{opp}/\text{hyp}} = 1 \cdot \dfrac{\text{hyp}}{\text{opp}} = \dfrac{13}{5}$

triangle: 12, 13, 5, x, y

$\sin^2 x + \cos^2 x = 1$

$i^4 = 1$
$i^2 = -1$
$\sqrt{2} \cong 1.4$
$\sqrt{3} \cong 1.7$
$\pi \cong 3.14$

$\dfrac{2}{3} + \dfrac{2}{3} = \dfrac{4}{3}$

$\dfrac{4}{3} \cdot \dfrac{2}{9} = \dfrac{8}{27}$

$\dfrac{8}{5} - \dfrac{1}{2} =$

$\dfrac{\frac{3}{2}}{5} = \dfrac{3}{1} \cdot \dfrac{5}{2} = \dfrac{15}{2}$

$\dfrac{16}{10} - \dfrac{5}{10} = \dfrac{11}{10}$

$|-3| = 3$

Lines

$y = mx + b$

$m = \text{slope} = \dfrac{\text{rise}}{\text{run}} = \dfrac{\triangle y}{\triangle x}$

$b = y$ intercept

⊥ slope = -reciprocal

Distance Formula

make the distance a hypotenuse & use

$a^2 + b^2 = c^2$

Foil

$(x + 1)(x - 2) = 0$
$x^2 - 2x + 1x - 2 = 0$
$x^2 - x - 2 = 0$

Midpoint Formula

$\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2}$

Reverse Foil

$x^2 - 7x + 10 = 0$
$(x - 5)(x - 2) = 0$
$x = 5 \quad x = 2$

$(x+2)^2 = (x+2)(x+2)$
$= x^2 + 4x + 4$

Logs

$\log_4 x = 2$
$x = 4^2$
$x = 16$

$\log_4 (xy)^2 = 2\log_4 (xy)$
$2(\log_4 x + \log_4 y)$

$\log_3 (x/y) = \log_3 x - \log_3 y$

Median = middle value

Mode = most recurring value

Mean $= \dfrac{\text{sum}}{\text{total \#}} = $ average

Range = largest minus smallest

1, 2, 2, 5, 7, 9, 100

Median =

Mode =

Mean =

Range =

Distance = (rate)(time)

Regular shaped object

\# of degrees =
(\# of angles - 2) • 180

Circle Formula

center = x_1, y_1

$(x - x_1)^2 + (y - y_1)^2 = r^2$

1. If $\dfrac{3}{4}^n = \sqrt{\left(\dfrac{3}{4}\right)^5}$ then n=?

6. A circle is tangent to the x axis at -4 and tangent to the y axis at 4. What is the equation of the circle?

2. $3^{(x+4)} = 27^{(x-1)}$

7. If 2x+y = 1 and 8x+5y = 8 then y =

3. What does a equal?

   $(a+b)^{1/2} = (a+b)^{-1/2}$

8. If a = 3b+1 and x = 1-2b, then what is x in terms of a?

4. Mark's best high jump increased 30% his junior year and 20% his senior year. By how much did his high jump increase over the two years? (GOOVGIN)

9. 30 males have an average age of 70 while 20 females have an average age of 40. What's the group's average age?

5. A basketball net 10 feet tall casts a shadow 1 foot long. At the same time a person shooting baskets casts a shadow 8 inches long. How many feet tall is the person?

10. A plane is detected on radar at the Omaha airport. It is 3 miles to the east and 4 miles to the north and 1 mile above the airport traffic control tower. What is the distance in miles that the plane is from the traffic control tower.

11. If each side of a rectangular cube is tripled, the new volume is how many times greater?
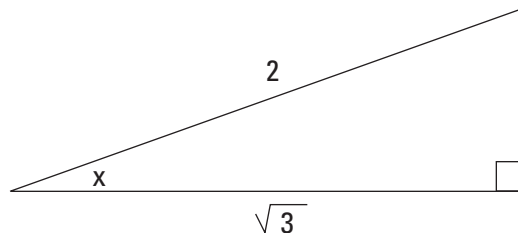
12. $\dfrac{3(2 + x)}{(^6/x) + 3}$

13. What is the probability of throwing a nine with two dice?

14. Six plants sit in a single row on a window sill. The plants can be positioned in how many different arrangements?

   If only 4 of the 6 plants will fit on the sill, how many different combinations are possible?

15. $\dfrac{\sqrt{1 - \sin^2 x}}{\cos x} - \dfrac{\sqrt{1 - \cos^2 y}}{\sin y}$

16.

sinx =	cotx =
cosx =	secx =
tanx =	cscx =

17. $6i^9 - 3i^5$

18. A stop sign is an octagon. How many degrees in each angle of a stop sign?

19. $\log_2 16 - \log_2 4 = \log_4 x$ What is x?

20. What is the 144th number to the right of the decimal point?

   $.\overline{357468}$

The ACT's *Writing Section* is optional, though we recommend that you take it once or twice, especially if you are applying to selective colleges.

You'll have 30 minutes to respond to an innocuous question like:
      -Do you think schools should have dress codes? Yes or No.
      -Do you think students should take time off – a 'Gap Year' – before going to college? Yes or No.

All questions should involve an issue germane to high school students.

The JBTP Strategy:

1 minute: take a side (go with your visceral, gut-level perspective).
4 minutes: put together an outline
                  (body paragraphs first, then write the open fully, and then outline the close).
22 minutes: write essay.
3 minutes: edit and refine the essay.

The 5 plus 1 paragraph method - be specific, illustrate with details.
      Opening paragraph:

            • **Include opinion**

            • **1 to 4 sentences**

                  • You might suggest opposite opinion in first two
                    sentences and then go with 'However' hook sentence.

                  • You might "show" rather than "tell."
      Body: 4 or more paragraphs explaining your best arguments. For example:

            • **quasi-fact**
            • **anecdote** (use anecdotes from popular culture and literature: Huck Finn,
                        To Kill a Mockingbird, Shakespeare, Pride and Prejudice, M.L.K.,
                        My Antonia, etc.)
            • **discredit opposing point of view**
      Close: a wrap-up
            • **restate your arguments and opinion**
            • **leave them wanting more: finish with a smile sentence**

• Don't be afraid to use 'I', but don't overuse it.

• Active voice! No sentences in passive voice.

• Avoid overly strong verbs like 'proves', 'shows', and 'demonstrates'. Instead, go with 'suggests', 'implies', or 'reflects'.

• Though in life 'less is more', research has shown that longer essays usually score higher.

• Use cursive unless yours is illegible.