READ BEFORE YOU BEGIN!

What you have in possession are my free sample questions. These questions & answers closely reflect the questions I have for sale on my main page. I currently offer two similar tests of 25 questions each, plus a Trig test with mini-lesson that has 15 questions, a fourth 25-question test with a min-lesson in Advanced Probability, and a fifth test that is the "master" test, a 100+ hour work that is 27 questions. All can be purchased for $12, or around 10 cents a question. This is easily the best deal on the internet. When you factor in the quality of questions and answers of my tests, there is no beating my practice exams, **I GUARANTEE IT**. If you like these free sample questions and the way the answers are explained on the next few pages, you may purchase my practice exams at: http://www.praxis2math.com.

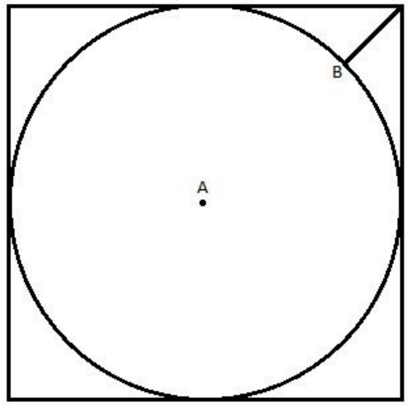
All questions on my practice tests are high on difficulty, but explained THOROUGHLY, so everyone taking this exam has a better understanding of the material that will be presented on the real Praxis II exam. Rest assured, you will be given the highest quality questions & answers, as all practice questions you purchase from me are exactly like the ones you will see on the test.

I have a Bachelors Degree in Mathematics, a Post-Baccalaureate in Secondary Education, and a Masters Degree in Curriculum and Instruction. I have won several awards in Mathematics throughout my life, and am an award winning High School Mathematics Teacher in the state of Vermont. I have also taken and passed the Praxis II exam on my first try, receiving the highest award possible (ROE – Recognition of Excellence) in the process.

The following sample questions strongly reflect the types of questions you will find on my purchased tests, and qualify for both the 0061 & 5161 exams. Unlike other Praxis II practice exams out on the web, I spent several hours making my exams (215+), tweaking it and perfecting it to the highest quality possible. Over an hour was spent per question (on average). My practice tests were then reviewed by Mathematics professors and high school teachers, all of which who gave it high grades as far as "do"-ability, difficulty, accuracy, and explanation of answers. It has also received praise from thousands of customers for affordability (read my testimonials). So have fun with these sample questions! If you like them, learned from them, and want more practice questions just like them, feel free to visit my website and purchase my practice exams through Paypal, one of the most respected and trusted companies on the web. Only a credit card is needed for you to have your practice exams right in front of you within seconds!

On the real 0061 & 5161 exams, you have 2.4 minutes per question. I'll give you a little extra at 2.5 minutes per question. Therefore:

YOU HAVE 5 MINUTES.
START THE CLOCK, THEN GO!



1) Shown above is a circle with center A that is enclosed perfectly in a square so that all sides of the square are tangent to the circle. The shortest distance from the edge of the circle to the corner of the square is drawn above at point B, and has a length of 2 ft. Find the radius of the circle to the nearest hundredth of a foot

(A) 4.24 ft

(B) 4.54 ft

(C) 4.66 ft

(D) 4.83 ft

2) There exists a parabola that has the equation $x^2 + 3x - 5$. Line k is a linear equation that is tangent to the parabola at x = -2. What is the y-intercept of line k?

(A) -7

(B) -8

(C) -9

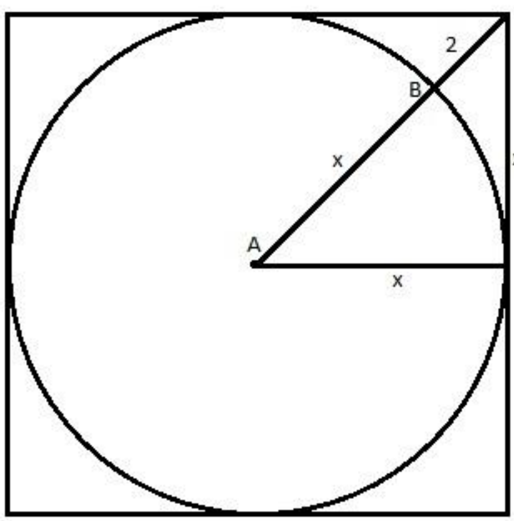
(D) -10

DETAILED ANSWERS

1) ANSWER: (D) 4.83 ft

This question involves knowledge of circles and triangles, as well as use of the Pythagorean Theorem, and the quadratic formula. Many questions on the real Praxis exam will incorporate more than 1 topic in order to solve it.

I. The first thing we must do is look at what we know. The only value given to us is the distance from point B to the corner of the square, which is 2 feet. Geometry is fun because we are allowed to draw lines to help us with our problems, as such:



II. In the above diagram, I drew 2 radii from the center of circle A: one to the edge of the square, and the other from point A to point B. Since both lines are a radius of circle A, they are both equal to each other, but at an unknown value that I labeled "X".

In doing so, we also made a right triangle, with width X, height X (we know this is X because it's the same length as a line drawn from center A to the top of the circle), and hypotenuse X + 2.

We can now use the Pythagorean Theorem to solve X:

$a^2 + b^2 = c^2$ → Substitute in the values for a, b, and c.

$x^2 + x^2 = (x + 2)^2$ → Simplify both sides.

$2x^2 = x^2 + 4x + 4$ → Move it all to the left side.

$x^2 – 4x – 4 = 0$

III. Now that we have an equation, we need to find the roots of that equation (aka the values of "x" which make it equal to 0). We can do this using the Quadratic Formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Or we can "cheat" and graph the equation on our calculator and zoom in until we see the where the line crosses the positive value on the X-axis, which would be at 4.83, choice **(D).**

If we were to use the quadratic formula, below is what it would look like. If $x^2 – 4x – 4 = 0$, then our coefficients are: a = 1, b = -4, c = -4.

Sub in values → $x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(1)(-4)}}{2(1)}$

Simplify → $x = \frac{4 \pm \sqrt{16+16}}{2}$

More → $x = \frac{4 \pm \sqrt{32}}{2}$ = 4.828 and -0.828

And since we can't have a negative value for x because we're dealing with distance, the answer must be 4.83, choice **(D).**

UPDATE: This problem has been an example of mine since the websites inception back in 2009. It has come to my attention that this very problem has been given as a real problem on the actual 5161 exam more than 3 times! Instead of the value 2, they used 7. Instead of a square, they used a right triangle. It's solved the exact same way as this example. And through feedback, this problem isn't the only replica of mine on the 5161 exam!

This question is not on any of my practice tests, but the high quality is. You will not find another high-quality, detailed, in-depth test like this anywhere on the internet, nor will you find one for lower than what I charge at around 10 cents a question. You will also receive two mini-lessons in Trigonometry & Advanced Probability, at no additional cost.

If you were able to open this sample question, then you will be able to open my tests. I am available to assist you by email if you have further questions: p2mmike@gmail.com

2) ANSWER: (C) -9

A fun calculus question! In order to do these, it is important to know what is being asked. We have an equation ($x^2 + 3x - 5$), and a line tangent to the original line ($y = mx + b$) when "x" is equal to -2. Let's begin:

This problem can be solved 2 ways:

I. Let's use the calculator! We can put the equation in to our Y= on our TI-84 (or whatever you have), and when we do, we zoom in where "x" is equal to -2. When we zoom in enough on that point, the coordinate is found to be (-2, -7). We now need the line tangent to $\mathbf{x^2 + 3x - 5}$, ON THAT POINT! To be tangent means to only hit that exact point, and nothing else. In order to do that, we need to find a slope at that point… aka the derivative.

II. We do this by doing the following on our calculator. Once we've zoomed in to our point (-2, -7), we hit "calc" ("2nd →Trace" on most calculators), and select "dy/dx".

Your cursor will come back up on the point (-2, -7), hit "enter". You will see at the bottom of your graph to say: dy/dx= -1. ← THIS IS THE SLOPE OF THE LINETANGENT TO $x^2 + 3x - 5$!

III. We can now find the rest of the equation of the line. The equation of a linear line is: Y=MX+B. We know the slope to be -1, and since it passes through the point (-2, -7), we can put that into our equation as well:

Y=MX + B → -7 = (-1)(-2) + b → -7 = 2 + b → -9 = b

We now know our answer to be -9, choice **(C).**

IV. You can even put that equation into your calculator to check your answer: Y = -x - 9. You will notice that the two equations are both drawn and look tangent at (-2, -7), which proves our answer to be true!

We can also solve this problem through derivatives:

I. Our equation is $x^2 + 3x - 5$. The line that is tangent to the equation above has the slope equal to the derivative at point -2. THAT IS A MOUTH FULL, so I'll explain further:

II. The derivative is the "rate of change", which is what calculus is all about. Rate of change is found by calculating slope. The rate of change at any point on the equation is found using derivatives.

To find derivatives of simple equations, simply take the power of each "x" factor, bring it down and multiply it by the "x" co-efficient, then subtract the power by 1. WATCH:

$x^2 + 3x - 5$ ← Take the power of each co-efficient of "x", bring it down and multiply it, then subtract 1. The first "x" has a power of 2, and 3x has a power of 1. So you multiply x^2 by 2 and 3x by 1, then subtract 1 from those powers, and you get 1 and 0. Watch:

$2(x^{2-1}) + (1)(3x^{1-1})$ → Drop the 5 since it isn't being multiplied by x. Then simplify what's left:

2x + 3 → Now we can sub in the value -2, to help find our slope at -2:

2(-2) + 3 → -4 + 3 → -1

III. We now know our slope to be -1. So we do just like we did in part III to the left, subbing in the slope and XY coordinate (-2, -7) to our Y=MX+B, we find our Y-intercept to be -9, choice **(C).**