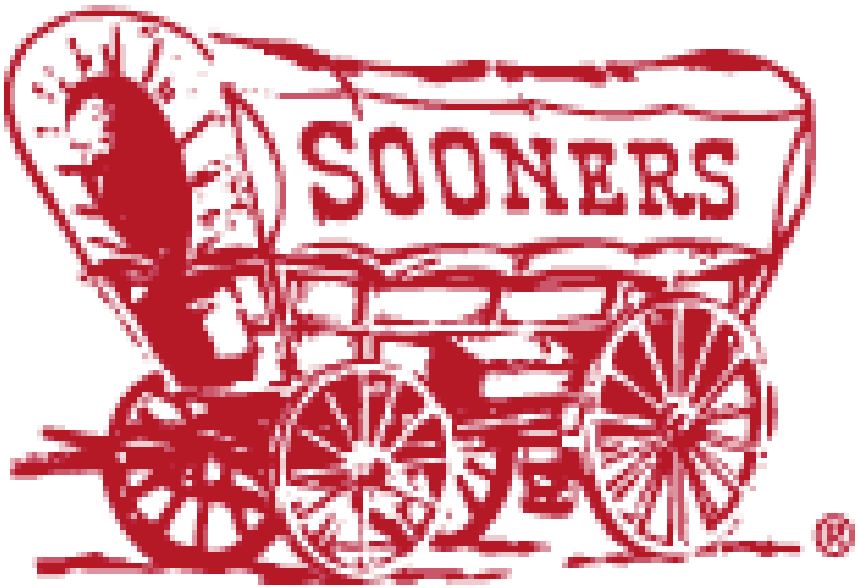
Sooner Math Bowl Overtime!

November 18, 2008

ROUND 1!



Round 1

Question 1:

If

$$20137828x3102$$

is a palindrome, what is x?

Answer:

$$x = 7$$

Round 1

Question 2:

If

$$f(x) = 3x + 9,$$

then what is

$$f^{-1}(42) = ?$$

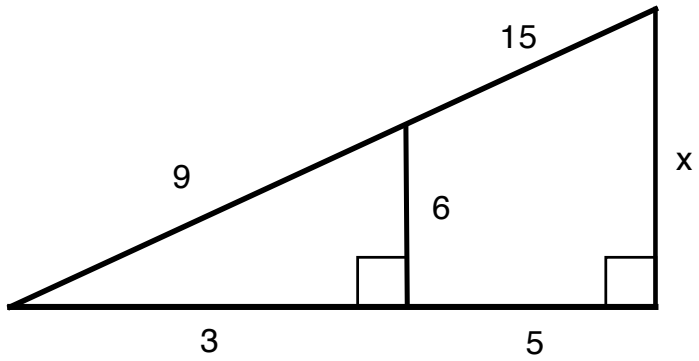
Answer:

$$f^{-1}(42) = 11$$

Round 1

Question 3:

What is x?



Answer:

$$x = 16$$

Round 1

Question 4:

A test has 4 True/False questions. If you randomly guess, what is the probability that you will get all 4 questions correct?

Answer:

1 in 16

Round 1

Question 5:

If you cut a square cake with three straight cuts, what is the maximum number of pieces you can have at the end? [1]

Answer:

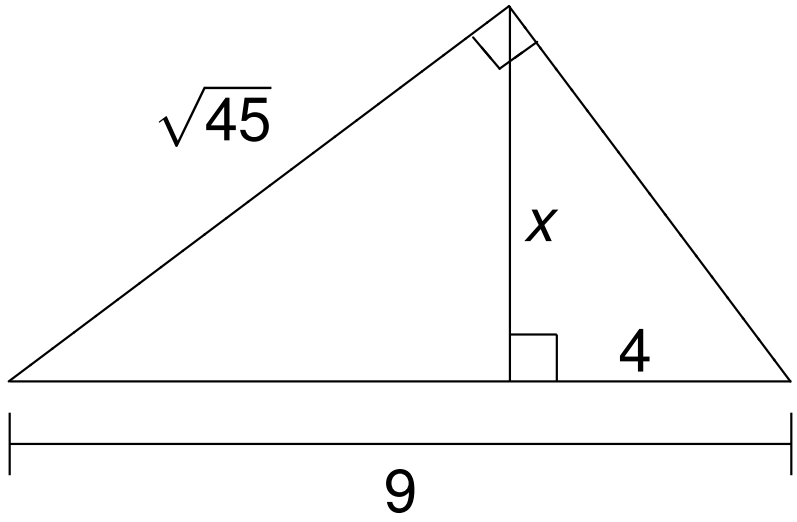
7 pieces if you only allow vertical cuts.
8 pieces if you also allow horizontal cuts.

[1] The question as written is ambiguous. One normally uses only vertical cuts to cut a cake, but horizontal cuts were not strictly forbidden. Sorry.

Round 1

Question 6:

What is x?[2]



Answer:

$$x = \sqrt{20} = 2\sqrt{5}$$

[2]There was a typo in the problem on Math Day but it had no affect on the outcome. The corrected version is given above.Sorry.

Round 1

Question 7:

What is the largest prime number which is less than 100?

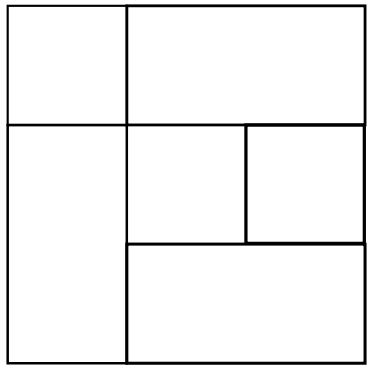
Answer:

97

Round 1

Question 8:

How many squares are in the following picture?



Answer:

6 squares

Round 1

Question 9:

If n is a natural number, what is the smallest possible positive number given by the following expression?

$$(n-1)(n-2)(n-3)(n-4)-2$$

Answer:

$$22$$

$$(\text{when } n = 5)$$

Round 1

Question 10:

Say $0 \leq \theta \leq \pi$ is an angle which satisfies

$$3\sin^2(\theta) + 3 = 6\sin(\theta).$$

What is θ?

Answer:

$$\theta = \pi/2 \text{ or } \theta = 90^\circ$$