Would you like to receive feedback from our execs? (marking your solutions, giving corrections, etc.)
Yes/No: _____

Multiple Choice

Highlight the correct answer for each question.

1. The value of $3\times2020+2\times2020-4\times2020$ is

(A) 6060 (B) 4040 (C) 8080 (D) 0 (E) 2020

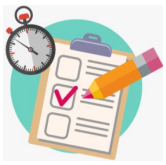
2. The sum of the first 9 positive integers is 45; in other words,

$$1+2+3+4+5+6+7+8+9=45$$

What is the sum of the first 9 positive multiples of 5? In other words, what is the value of:

$$5+10+15+\cdots+40+45$$

(A) 225(B) 250 (C) 180 (D) 150 (E) 450



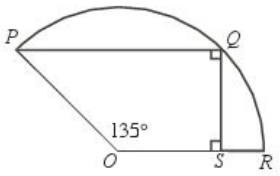
3. A multiple choice test has 10 questions on it. Each question answered correctly is worth 5 points, each unanswered question is worth 1 point, and each question answered incorrectly is worth 0 points. How many of the integers between 30 and 50, inclusive, are not possible total scores?

(A) 2 (B) 3 (C) 4 (D) 6 (E) 5

4. The y-intercepts of three parallel lines are 2, 3 and 4. The sum of the x-intercepts of the three lines is 36. What is the slope of these parallel lines?

(A) -1/4 (B) -1/6 (C) -1/2 (D) -1 (E) -1/3

5. In the diagram, points **P**, **Q**, and **R** lie on a circle with center **O** and radius 12. Point **S** lies on **OR**, if ∠POR = 135°, the area of trapezoid **OPQS** is closest to:

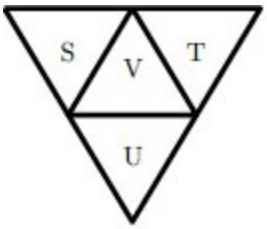


(A) 216 (B) 144 (C) 108 (D) 112.5 (E) 114.6

Word Problems

Either type your solutions or insert images of handwritten solutions. Be sure to show your work!

1. In the picture below, there are four triangles labelled S, T, U, and V. Two of the triangles will be coloured red and the other two triangles will be coloured blue. How many ways can the triangles be coloured such that the two blue triangles have a common side?



2. Suppose that n is positive integer and that a is the integer equal to $\frac{10^{2n}-1}{3(10^n+1)}$ **.** If the sum of the digits of a is 567, what is the value of n?

3. A positive integer is said to be bi-digital if it uses two different digits, with each digit used exactly twice. For example, 1331 is bi-digital, whereas 1113, 1111, 1333, and 303 are not. Determine the exact value of the integer b, the number of bi-digital positive integers.

Survey

Your responses will not affect your likelihood of being counted for attendance. This is simply to let our execs know how we can improve. :)

1. Approximately how much time did you spend on this problem set?

(A) Less than 15 mins
(B) 15 mins to 30 mins
(C) 30 mins to 1 hour
(D) 1 to 2 hours
(E) Over 2 hours

2. How difficult did you find this problem set?

(A) Too easy
(B) Fairly easy
(C) Neutral
(D) Fairly difficult
(E) Too difficult

Thank you for your feedback!