

1. What is the sum of the quotient and the remainder when you divide 2012 by $(20 + 12)$?

_____ 1

2. The 4×4 multiplication table of some integers between 1 and 10 is partially filled in. What is the value of $J + K + L + M + N + P + R + S + T$?

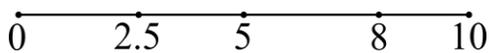
•				7
	J	K	L	56
	M	36	8	N
	T	27	6	P
6	18	R	S	42

_____ 2

3. The combined weight of 2 identical dice, 5 identical balls and 4 identical marbles is 260 grams. The combined weight of one die and one marble is 55 grams, and 3 balls weigh the same as two dice. What is the total weight (in grams) of one die, one ball, and one marble?

_____ (g) 3

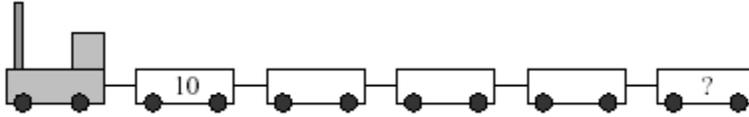
4. Thelma and Louise have a 10 km jogging race. Both start at the same time, Thelma at speed V_{T1} and Louise at speed V_{L1} ($V_{L1} > V_{T1}$). When Thelma is 2.5 km into the race she increases her speed by 50% to V_{T2} for the balance of the race and exactly at the 5 km mark she passes Louise. When Louise is 8 km into the race she increases her speed to V_{L2} . Both Thelma and Louise finish the race at the same time, 90 minutes after they started the race. What is V_{L2} (in km/h)?



_____ (km/h) 4

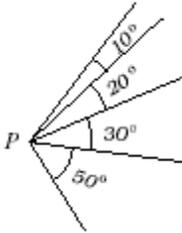
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5. The locomotive has just enough fuel to pull cars whose combined weight is two and a half times its own weight. The first 4 cars have weight of 10 tons each and the locomotive's weight is 30 tons. What is the maximum possible weight of the last car (in tons)?



_____ (tons) 5

6. How many different measures of angles smaller than 180° can be formed at P using any 2 rays of the 5 rays in the figure below?



_____ 6

7. The surface area of a closed jewelry box is 832 cm^2 . The measures (in cm) of its sides are integers and they form an arithmetic sequence. What is the volume of the box (in cm^3)?

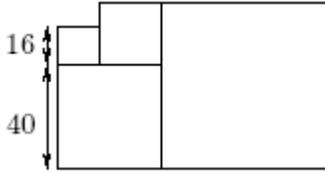
_____ (cm^3) 7

8. You throw 3 dice and note that the sum of all 3 dice is 14. What is the probability that one of the three dice shows the number 3?

_____ 8

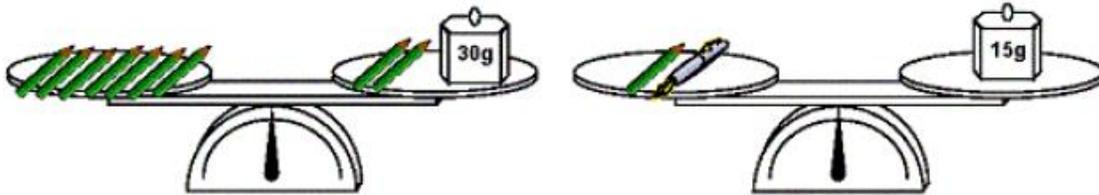
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9. Four squares are shown in the figure below. Combined, they form a six-sided polygon. What is the area of the six-sided polygon?



_____ 9

10. Ten identical pencils, one pen, and two weights are placed on the scales as in the figure below. Both scales balance. What is the total weight of all pencils and the pen combined (in g)?

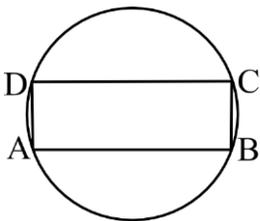


_____ (g) 10

11. You have a total of 9 coins: three 1c coins, two 5c coins, two 10c coins, and two 25c coins. How many different positive sums of money can you make using one or more of these coins?

_____ 11

12. In the figure below, ABCD is a rectangle inscribed in a circle with radius 10 units. The area of the rectangle is 138 square units. What is the perimeter of the rectangle?



_____ 12