

# SOLUTIONS: Stage I Question Set 1

## Solution to Question #1:

The numbers in increasing order are: 1.002, 1.01, 1.02, 1.1, 1.101  
Thus, the largest number in the set is 1.101. The correct answer is (c).

## Solution to Question #2:

$6 + \frac{3}{100} + \frac{2}{1000} = 6 + 0.03 + 0.002 = 6.032$ . The correct answer is (b).

## Solution to Question #3:

The length of each side of the square patio must be 5m because  $5 \times 5 = 25$ .  
Thus, adding the four sides of the square gives the perimeter,  $5m + 5m + 5m + 5m = 20m$   
The correct answer is (d).

## Solution to Question #4:

The number of passengers going to ski and snowboard is  $22 + 19 = 41$ .  
Included in this number are passengers who plan to do both. So, the number of passengers who plan to do one, or both activities is  $41 - 6 = 35$ . The number of passengers who are not going to participate in either activity is  $44 - 35 = 9$ . The correct answer is (d).

## Solution to Question #5:

If the average of the four ages is 8, then the sum of the four ages must be  $8 + 8 + 8 + 8 = 32$ .  
If two of the children are ages 6 and 9, then the sum of the other two children's ages must be  $32 - (6 + 9) = 17$ . The correct answer is (a).

## Solution to Question #6:

Carlos was supposed to meet for lunch at 11:35 a.m. He was 1 hour late by 12:35 p.m. When Carlos finally arrived another 30 minutes later, it was 1:05 p.m. (and Martina was furious!).  
The correct answer is (e).

## Solution to Question #7:

When the dispenser is one-quarter full, it contains:  $\frac{1}{4} \times 14 \text{ liters} = 3.5 \text{ liters}$   
Thus, Meagan must add 14 liters - 3.5 liters = 10.5 liters of juice. The correct answer is (c).

## Solution to Question #8:

If Ernie's allowance is x dollars, and Frank's allowance is \$4 more, then Frank must receive  $x + 4$  dollars as an allowance. The correct answer is (e).

## Solution to Question #9:

The sales tax for a pair of 15-dollar gloves is 14%. Therefore,  $\$15 \times 0.14 = \$2.10$   
Each pair of gloves will cost Bruno  $\$15.00 + \$2.10 = \$17.10$   
Thus, to buy gloves for the 12 members of his family, Bruno will have to spend  $12 \times \$17.10 = \$205.20$   
The correct answer is (e).

## Solution to Question #10:

Brenda's den is in the shape of an isosceles triangle, so it must have two equal sides. This means the third side is either 6m, or 2m in length. However, the rule for triangles states that "the sum of any two sides must be greater than the third." A triangle with sides of 2m, 2m, and 6m does not exist. Thus, Brenda's den must have a perimeter of  $6m + 6m + 2m = 14m$ . The correct answer is (b).

## Solution to Question #11:

The area of triangle RSV = the area of the triangle RST - the area of triangle RVT

$= \frac{1}{2} (6 \text{ cm}) (14 \text{ cm}) - 28 \text{ cm}^2 = 42 - 28 = 14 \text{ cm}^2$  The correct answer is (a).

**Solution to Question #12:**

The average of the three scores is  $150 \div 3 = 50$ . Thus, Charles scored  $50 + 12 = 62$  marks on the exam, and Julie scored  $50 - 3 = 47$  marks. Danny's score must be  $150 - (62 + 47) = 41$  marks.

The correct answer is (b).

**Solution to Question #13:**

Sandy's income is  $80/100 = 80\%$  of Cindy's. The reciprocal gives us Cindy's income as a percentage of Sandy's.  $100/80 = 5/4$  or  $125\%$ . The correct answer is (e).

**Solution to Question #14:**

The shortest distance between TacoDan's and Mark's home is the hypotenuse of a triangle. Thus, the shortest distance is  $\sqrt{(3^2 + 5^2)} = \sqrt{25} = 5$ . The correct answer is (a).

**Solution to Question #15:**

We know each side of the square is  $\sqrt{(25)} = 5$ . The radius of OR is the same as one of the sides of the square. Thus, the area of the circles is:  $\pi r^2 = \pi(5^2) = 25\pi$ . The correct answer is (d).

**Solution to Question #16:**

The correct change that Amos should have received is  $\$20.00 - \$11.97 = \$8.03$

Since the sales clerk gave Amos  $\$11.97$  change, Amos needs to return  $\$11.97 - \$8.03 = \$3.94$

The correct answer is (b).

**Solution(s) to Question #17:**

Each of the three ages are used twice to form the three sums. Thus,  $68 + 78 + 77 = 220$  is twice the sum of the sisters' ages. The sum of the sisters' ages must be  $220 \div 2 = 110$ . We know that the sum of the two younger sisters must be 68. Then the age of the oldest Simon sister must be  $110 - 68 = 42$

The correct answer is (e).

**Solution to Question #18:**

Four pink and two coho salmon weigh 22 kg, so eight pink and four coho salmon must weigh 44 kg.

Subtract the weight of five pink and three coho salmon (29 kg) and we are left with the weight of three pink and one coho salmon.  $44 \text{ kg} - 29 \text{ kg} = 15 \text{ kg}$  The correct answer is (a).

**Solution to Question #19:**

A = actual time elapsed, and P = Poles time,  $P = (66/60)A$

Where 60 minutes have elapsed, A = 60 minutes, and P = 66 minutes. Calvin sets his watch correctly at 8 a.m. According to his watch, 9 Poles hours have elapsed. So  $9 = (66/60)A$ , which means that  $A = (60 \cdot 9) / 66 = 8.18\ldots$  hours, and 8 a.m. + 8.18... hours means that the actual time is 4:11 p.m., to the nearest minute.

The correct answer is (a).

**Solution to Question #20:**

The 1st column tells us that the sum of any column, row or diagonal must equal 15. Thus, the square in the center is  $15 - (3 + 7) = 5$ , and the square in the lower right corner is  $15 - (8 + 5) = 2$ .

$H = 15 - (4 + 2) = 9$ . The correct answer is (c).