

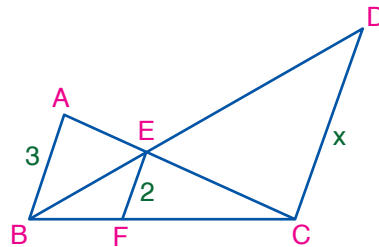
1. [Algebra, 3 Points]

An item which normally sells for \$150 is on sale for \$108.  
What is the percent of discount for the sale price?

- A) 22%                      B) 24%                      C) 28%                      D) 32%                      E) 38%

2. [Geometry, 3 Points]

In the figure,  $\overline{AB} \parallel \overline{EF} \parallel \overline{CD}$ ,  $AB = 3$  cm,  $EF = 2$  cm.  
What is  $CD = x$ ?



- A) 6 cm                      B) 7 cm                      C) 8 cm                      D) 9 cm                      E) 10 cm

3. [Number Theory, 3 Points]

For distinct digits A, B, C, and D,

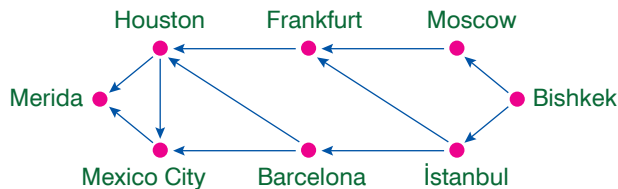
$$A + B = C + D$$

What is C for the **greatest** four-digit number ABCD?

- A) 4                      B) 5                      C) 6                      D) 7                      E) 8

4. [Combinatorics, 3 Points]

An international conference is being held in Merida, Mexico.  
The Kyrgyz team must choose a flight route from Bishkek to Merida.  
The possible routes are shown in the following diagram.



Regardless of the number of connections, how many different possible routes are there?

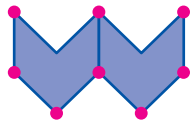
- A) 7                      B) 8                      C) 9                      D) 10                      E) 11

5. [Number Theory, 5 Points]

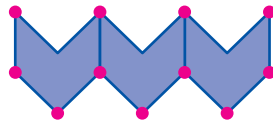
If the pattern continues, how many dots will be in the 20<sup>th</sup> figure?



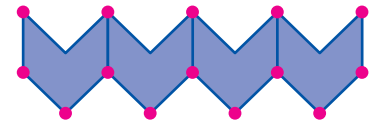
1<sup>st</sup> figure



2<sup>nd</sup> figure



3<sup>rd</sup> figure



4<sup>th</sup> figure

A) 59

B) 61

C) 62

D) 63

E) 65

6. [Algebra, 5 Points]

In an online math practice test, Jordan attempts exactly  $\frac{3}{4}$  of the problems and answers  $\frac{5}{8}$  of those problems correctly.

When he submits the test, he finds that he answered 105 problems correctly.

How many math problems are on this test?

A) 220

B) 224

C) 243

D) 248

E) None of the preceding

7. [Combinatorics, 5 Points]

Six people are to be seated at a round table containing six seats.

In how many ways can they be seated?

A) 6

B) 24

C) 36

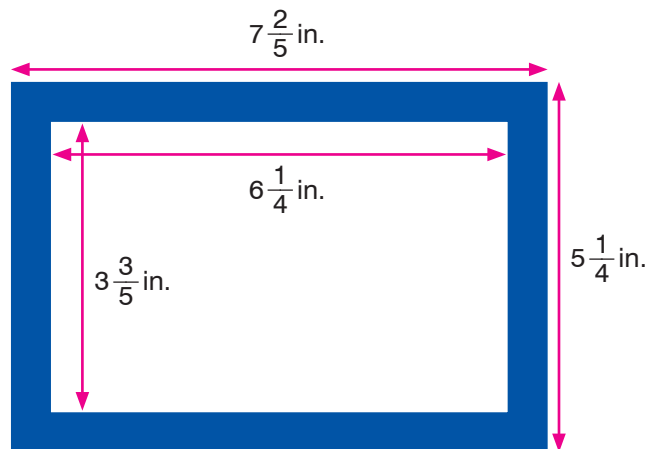
D) 120

E) 720

8. [Geometry, 5 Points]

Alice is making a picture frame like the one shown.

What is the area of the picture frame?



A)  $14\frac{7}{20}$  in<sup>2</sup>

B)  $15\frac{7}{20}$  in<sup>2</sup>

C)  $16\frac{7}{20}$  in<sup>2</sup>

D)  $17\frac{7}{20}$  in<sup>2</sup>

E)  $18\frac{7}{20}$  in<sup>2</sup>

