GREYBIRD
Pilot Academy

Admission Test Preparation

Commercial Pilot Education

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Purpose of the Test

The purposes of the tests are very different. The purpose of the math test is to verify that you have sufficient math skills to tackle the calculations that will be part of the education. Pilots use math often and many times per flight, but the calculations are rather simple. Thus, math is important for pilots, and it is important that your basic math skills are relatively good, as some calculations have to be done in your mind while flying. On the other hand, the math used by pilots is quite simple, which is why advanced math is not important or even necessary to successfully complete the education and function as a professional pilot. However, basic math skills are important to master at a relatively high level.

The PPA is a personality profile analysis. At GreyBird Pilot Academy, we use Thomas International's DISC Personality Profile Analysis (PPA). This is a personality test which enables us to evaluate candidates' character traits in an in-depth way in order to determine whether they will be a suitable match for a role as well as how they prefer to communicate with others. The PPA test in itself cannot be passed or failed, but the result provides the interviewer with a high level of knowledge about the person, which is highly useful during the interview and gives us insight into the level of the candidate's self-awareness.

We use the IQ test to make sure that the candidate has a normal IQ. Having a high IQ is obviously an advantage in most life situations, but high-IQ candidates are not automatically more successful than normal-IQ candidates. We have a saying that goes:

The hard working beat the talented, if the talented aren't hard working.

With this, we claim that hard work is necessary to be successful during the education. Being a person with a high IQ will of course make it easier to successfully complete the education. However, working and studying hard is paramount. The IQ test, therefore, serves only to verify that the candidate does not have a low IQ, because that will make the education very hard. Please note, however, that we are not only looking for particularly bright candidates, but we are trying to avoid raising false hopes to a person who is unable to take in the amount of knowledge that is needed in the available time. As a consequence, the candidate must have an IQ in the normal range or higher, which means an IQ above 85.

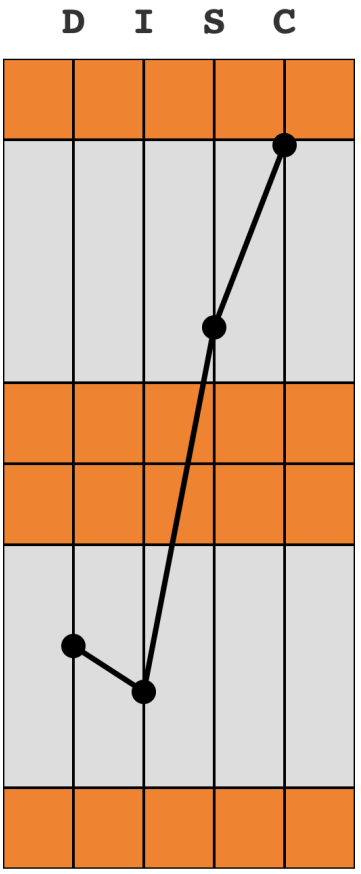
The DISC PPA test

The DISC PPA test is not a test you can pass or fail. It is, however, a test that tells you and us a lot about the type of person you are. The result is primarily used during the interview to assess the level of awareness of your own preferences and how you prefer to communicate.
These are examples of questions in the test:

Select a single word or phrase that most describes you and one that least describes you when you join a new team?	
Choose the word that best describes you • Gentle • Dominant • Humble • Persuasive	Choose the word that least describes you • Gentle • Dominant • Humble • Persuasive

What most describes and least describes how you deal with conflict in the workplace or school?	
Choose the word that best describes you • Passive • Understanding • Firm • Persuasive	Choose the word that least describes you • Passive • Understanding • Firm • Persuasive

The test will result in a graph that indicates the test person's preferences measured in four different categories. Dominance, Influence, Stability and Compliance. This system is referred to as DISC. The DISC graph may look like the example shown to the right. However, the graph can also take many other shapes. The example shown to the right indicates a personality who does not thrive in conflicts, who prefers to have specific knowledge on a subject before making decisions, who is not fond of being the center of attention and who prefers listening more than speaking. At the same time, the person is prone to be very detail-oriented, to prefer written documentation and communication and to work with high expectations of themselves and others. The quality of the product matters more than the deadline, and errors should be avoided at all costs. The person identifies well with a group of people and prefers to be working in teams as long as the focus is on the task at hand and not social conversation.



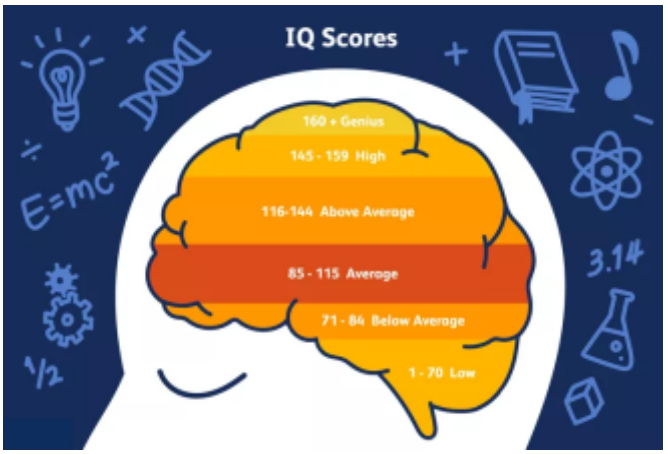
It is important to understand that there are no correct or incorrect answers in the PPA test. There are no good or bad answers, there are only true or false answers. Only you know if you answer truthfully, although the test result will show if you answered truthfully or not. It is not possible to construct a different PPA than your actual PPA, and there is no reason to do so.

There is no good or bad PPA result. The important outcome for GreyBird from the PPA test is to understand how well you know yourself, and it helps us ask the relevant questions during the interview. Later during your education, it helps us to guide and help you in the best possible way. During your education at GreyBird, you will be trained in DISC and how to use it when communicating with others. This is an extremely important and useful tool that will help you in your future career and life!

The IQ Test

An IQ test may sound frightening, but we can assure you that it is not. First of all, we would like to explain why we do an IQ test, and then we will explain how it works and how you should perform the test during the admission process.

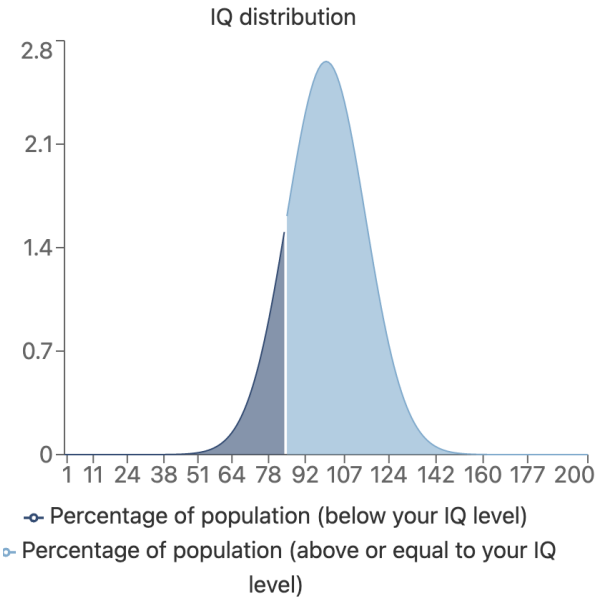
First and foremost, the reason for doing an IQ test is NOT that we are aiming to strictly admit extremely bright students. We have those as well, and it is absolutely a benefit in most of life's challenges to be bright, but it is not necessary to be brighter than most to become a pilot. When we do this test, it is primarily to support the math test. We are looking for students in the IQ range that is considered normal or above. The normal IQ range is from 85 to 115. This covers approximately 84% of the population, which means that only 16% of the entire population have an IQ that is considered lower than normal. A lower-than-normal IQ will not automatically exclude you from the education, but it will require that you perform well in the math test and that – during your interview – you strongly indicate that you are aware that you are a slow learner, but a hard worker. It is not common for people who aim to become a pilot to have an IQ below 85.



Doing an IQ test is difficult territory, because a test that is misunderstood or flawed because of poor instruction may affect the self-confidence of the test person when the result is given. Therefore, we are extremely careful when assessing the results. If, for instance, a person communicates in normal language with long sentences and can present a plan for his or her education and at the same time performs well in the math test, it is highly unlikely that this person's IQ is lower than what is considered average. Therefore, we are very thorough when conducting the test. It may feel dramatic to have one's IQ tested, because the result feels unchangeable. This is true, the IQ of a person varies over time, not dramatically though, and there is nothing that can be done short term to affect the IQ of a person. It is different from, for instance, math skills which can be improved dramatically over a short period of time. However, an IQ test can test wrong, so therefore we aim to verify the result of the IQ test through a lot of other observations. Sometimes an IQ test indicates a result which seems highly unlikely – not often, but sometimes. In these cases, we ask the student to retake the test, and we make sure that the instructions given are completely understood by the student. If you feel normal or better, if you believe that you are comparable to most, it is highly likely that you are.

The reason why we do this test is to find the few candidates who will most likely struggle with the amount of material to learn and remember during the education. There is a direct relation between memory and IQ, and as a pilot, you have to remember a lot and to be able to learn and remember large amounts of knowledge in a relatively short period of time. Our aim with the IQ test is to make sure that the candidates we accept are highly likely to be successful. In other words, the test is used to verify that you will be successful!

What is the test, then? An IQ test places the tested person on a scale. The scale has what is referred to as normal distribution. This means that the vast majority of a population is placed in the center of that scale. The IQ scale and the distribution are shown in the picture to the right.



To understand how to read the scale, we should address an important question: What is IQ? Psychologists split human intelligence up into crystallized and fluid intelligence. Crystallized intelligence refers to acquired knowledge and skills. Fluid intelligence means a general cognitive ability; ability to learn new things, reasoning, recognize patterns, and draw inferences.

IQ is a score obtained from tests invented to measure fluid intelligence. IQ stands for Intelligence Quotient. It is named in this way because it used to equal the mental age (based on the test score) divided by chronological age multiplied by 100.

Nowadays, it is no longer a quotient, although the name remains. The so-called deviation IQ used by most tests is determined by comparing scores to the average performance of the representative group in the person's age range. Raw test scores are converted to standard scores where the average IQ is 100 and the standard deviation is usually 15.

The following is a more in-depth description of what an IQ test is and how the math works. It is not important knowledge to have in order to pass the admission test, and knowing how an IQ test works does not change your result. Consider the next paragraph in gray italic as background knowledge that you may read if you are interested, but which can also be skipped without any effect on your admission test.

Description of the Statistical Math Behind the IQ Curve

A standard deviation (or σ) is a measure of how dispersed the data is in relation to the mean (average). Low standard deviation means that data are clustered around the mean, and high standard deviation indicates that data are more spread out.

Standard deviation is a statistic that measures the dispersion of a data set relative to its mean and is calculated as the square root of the variance. The standard deviation is calculated as the square root of variance by determining each data point's deviation relative to the mean.

The term variance refers to a statistical measurement of the spread between numbers in a data set. More specifically, variance measures how far each number in the set is from the mean, and thus from

every other number in the set. Variance is often depicted by this symbol: σ^2. It is used by both analysts and traders to determine volatility and market security.

The standard deviation is a measure of spread; in this case of IQ scores. A standard deviation of 15 means 68% of the norm group has scored between 85 (100 – 15) and 115 (100 + 15). In other words, 68% of the norm group has a score within one standard deviation of the average (100).
The fact that the standard deviation is 15 means that the normal scope runs 15 points on each side of the mean which is 100. Therefore, the normal range is from 85-115. Approx. 68% of the population is within this scope, and half of the rest has a better score, which is why we arrive at the conclusion that 68% + (100% - 68%) / 2 = 84% of the population is within the normal scope or higher.

How does the Raven test work then? A Raven test is a type of IQ test that aims to assess a person's IQ in relation to mathematical, logical reasoning. This is done by asking the person to identify patterns. The patterns can be hidden in letters, numbers or graphical presentations.

The Raven's Progressive Matrices Test is a non-verbal cognitive assessment tool that measures a person's ability to reason abstractly and solve problems using visual information. The test consists of a series of diagrammatic puzzles that assess a person's ability to identify patterns, comprehend rules and reason logically.

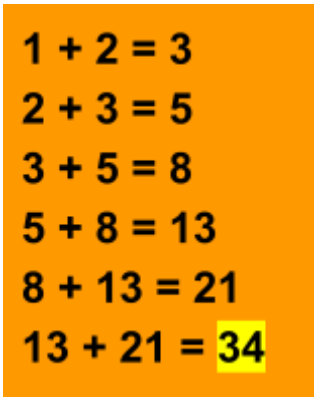
The test person is presented with a matrix or a set of shapes that have a missing part or pattern, and they must choose the correct response from a set of options. The level of difficulty of the test increases as the test progresses with more complex and abstract patterns.

The test is designed to be culturally unbiased and can be used to assess individuals across different age ranges and educational backgrounds. It is widely used in educational and employment settings to measure a person's cognitive abilities and potential for success.

The Raven's Progressive Matrices Test provides a reliable and objective measure of cognitive abilities that are essential for academic and professional success. It has been validated through extensive research and is widely recognized as one of the most effective tests for measuring non-verbal reasoning abilities.

See examples of hidden numbers below:

Consider the numbers: 1,2,3,5,8,13,21,
What is the next logical number in the sequence?



This number row is part of the fibonacci code where the sum of the two preceding numbers equals the next number. Observe the example to the left.

34 is the next logical number to place in the order.

Other examples of the same order could be the fibonacci code -1 which would equal 4,7,12,20,33, and so on. It could also be fibonacci code x3 which starting from 1 would be 3,6,9,15,24, (note that in this case 3 + 6 = 9, 6 + 9 =15, 9 + 15 = 24). Therefore, the fibonacci code repeats, also if the numbers are offset by factors. There could be many other examples of number orders: 1,5,11,19,31 is another example of the fibonacci code, only this time, the code is enrolled in odd numbers; between 1

and 5 is one odd number (3), between 5 and 11 are 2 odd numbers (7 and 9), between 11 and 19 are 3 odd numbers (13,15 and 17) and between 19 and 31 are 5 odd numbers (21,23,25,27 and 29). The numbers 1,2,3,5 are the beginning of the fibonacci code.

Another example could be as simple as 2,6,10,14, which is every second equal number starting from 2. The next logical number in the sequence is 18 because it skips the number 16 after 14.

The final example is the number row 2,4,8,14,22, which is a row of equal numbers which skips an increasing number of equal numbers. Between 2 and 4 is 0 equal numbers, between 4 and 8 is 1 equal number (6), between 8 and 14 are 2 equal numbers (10 and 12) and between 14 and 22 are 3 equal numbers (16,18 and 20), the next logical number in the order would skip 4 equal numbers (24,26,28 and 30) and therefore be 32.

See examples of hidden letters below:

Consider the letters: A,B,D,G,K
What is the next logical letter in the sequence?

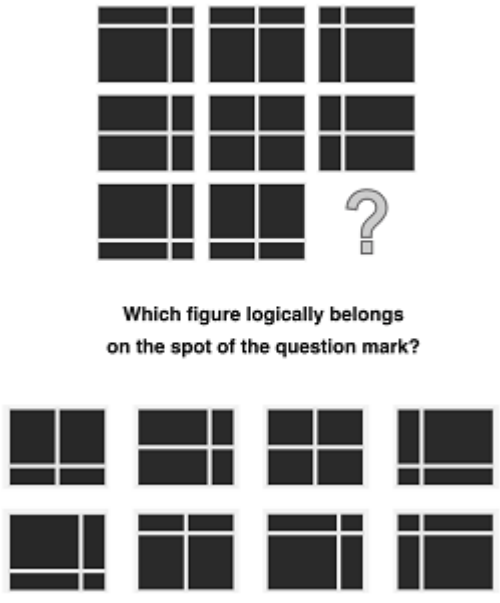
You should identify that there is a repeating pattern which is that there is an increasing number of letters missing between the letters in the order. Between the letters AB there are 0 missing letters. Between BD the letter C is missing and thus 1 letter is missing. Between DG the letters EF are missing and thus 2 letters are missing. Between GK the letters HIJ are missing, therefore 3 letters are missing, the pattern here is 0,1,2,3, and the next logical number in the pattern is 4 and should be represented by the letters LMNO, and therefore the next letter to logically place in the order is P.

Another simple example of a pattern in letters is:

Consider the letters: M,T,W,T,F,S
What is the next logical letter in the order?

After studying the letters, you may find that they match the days of the week: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday. Therefore, the next logical letter in the order is S for Sunday.

An example of a pattern hidden in graphic illustrations could be

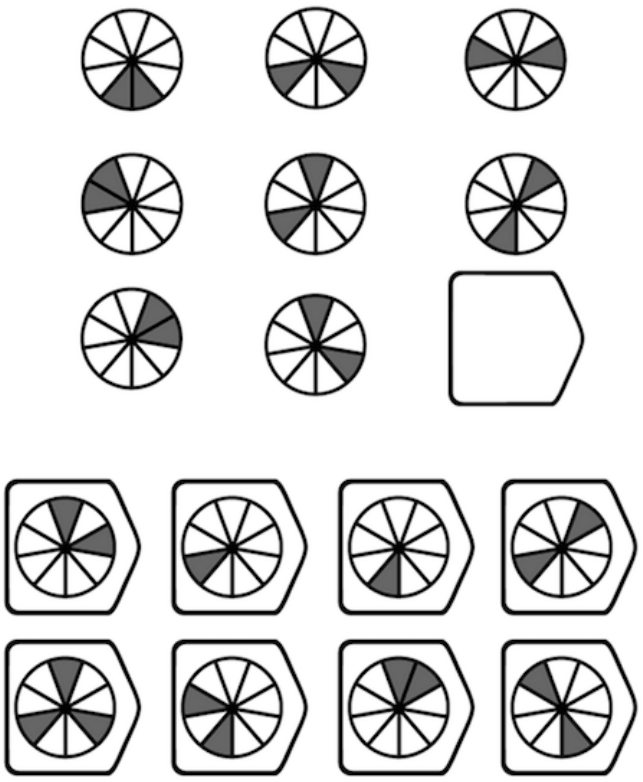


To tackle this, we need to identify the patterns that emerge in the eight small pictures. In each of the small tiles, there is a black background and two white lines. Start by observing the vertical line, in all the leftmost tiles; the vertical line is placed to the right in the tile. In the center tiles, the vertical line is placed central, and in the two rightmost tiles, the vertical line is placed to the left. This indicates that the vertical line should also be placed to the left in the missing tile. This observation means that we can rule out all but the two rightmost tiles that are shown at the bottom. To determine which of the two rightmost tiles is correct, we must consider the horizontal line. In the top row of the 8 tiles, the horizontal line is placed at the top of the tile. In the center row of the 8 tiles, the horizontal line is placed in the center, and in the bottom row of the 8 tiles, the 2 tiles show that

the horizontal line is placed at the bottom. This indicates that the horizontal line should also be placed at the bottom.
Thus, the conclusion must be that we are looking for a tile with the vertical line to the left and the horizontal line at the bottom. This tile must be as shown to the right.

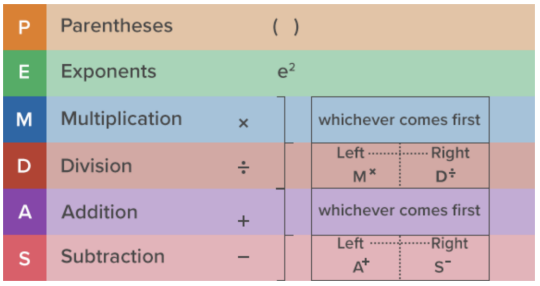
Another example of a Raven question based on graphic patterns is shown below. The principle for finding the pattern here is different. There are actually two repeating patterns in the example. Start by considering the small circles line by line. If you look at the first line, observe how the difference from the left circle to the center circle is that the colored fields are on the flanks of the previous colored fields when moving from left to right. The same pattern repeats from the center circle to the right circle, the colored fields keep moving away from the original centerline between them. Then move to line two and three and verify that the pattern is exactly the same. Knowing this is actually enough to determine that the correct answer is the figure shown to the right.

But there is another pattern which can confirm the first pattern. Observe the columns instead. In the leftmost column at the top, you see two colored fields at the bottom of the circle. If you rotate them clockwise 3 positions to get to the middle circle, and if you rotate them further 3 positions, you arrive at the bottom circle. Observe the middle column and then identify the pattern on the top circle and rotate that pattern 3 fields clockwise. Again, we get the middle circle, and again we can continue to rotate clockwise 3 fields, and we arrive at the bottom circle. Let us continue the pattern. Observe the top circle in the rightmost column. Rotate the pattern clockwise 3 positions. Again, we arrive at the middle circle. If we continue this motion clockwise further 3 positions, we arrive at exactly the same circle picture as shown above. This makes us 100% sure that we have identified the correct pattern.



The pattern can be identified in different ways in different Raven tasks, but it is a good idea to identify differences and repeat patterns in rows, in columns, sometimes diagonally and sometimes there are many patterns. A figure may be rotating clockwise, but moving counterclockwise in the picture, and lines may disappear if they overlap, but show when they don't. You are not supposed to be able to solve all tasks. Some of them will appear to have no solution, which is OK. If you could solve all of it, we could not identify your IQ.

The Math Test



The math test consists of relatively simple equations, percent calculation, multiplication, division and other basic calculations. This test is mandatory by law, as GreyBird Pilot Academy is a complex ATO (Approved Training Organisation), and as such we are obligated to ensure that all candidates that are accepted into our programme have a math level at least to the level of ground school. Most of the students who enter into the programme have some sort of high school math background, but this is not mandatory. Other students are trained craftsmen or have experience from the business world, which may be at least as good.

Below, please find some examples of questions which are similar to the questions from the math test. Some are simpler than others. You will find first the questions and the possible answers, then the explanation of how to do the math.

Question #1:
`-5(1 x 3 - 2 / 2) + (8 + 2 - 3)`

Answer A: -3
Answer B: 3
Answer C: -1
Answer D: 5

Explanation:
This question is based on the basic rules of math and the order of operations. Generally, parentheses take precedence over exponents which take precedence over division and multiplication which again take precedence over addition and subtraction. In addition, the calculations should be solved from left to right. Therefore, the calculation should be broken down as shown below.

Initially we must resolve the two parentheses as highlighted below:
`-5(1 x 3 - 2 / 2) + (8 + 2 - 3)`

The inside of the first parenthesis can be broken down into a multiplication calculation from which a division calculation should be subtracted. We have to attend to the multiplication and division first, and both must be resolved before the subtraction:
`-5(1 x 3 - 2 / 2) + (8 + 2 - 3)`

`1 x 3 = 3`
`2 / 2 = 1`
So now we have reduced the first parentheses to:
`-5(3 - 1) + (8 + 2 - 3)`

We are still working inside the parentheses, and now we can resolve both parentheses with addition and subtraction, and as the calculation in the right parenthesis has more than one calculation, we are working from left to right:

-5(3 - 1) + (8 + 2 - 3)

3 - 1 = 2

8 + 2 = 10

10 - 3 = 7

This leads to:

-5(2) + (7)

The right parenthesis now holds a single number and has no operator before or after, and therefore the parenthesis can simply be removed:

-5(2) + 7

The left parenthesis holds a single number and has a operator attached to it, which means that when you remove the left parenthesis, a multiplication of the two numbers appears, which leads to:

-5 x 2 + 7

The multiplication takes precedence over the addition, and therefore we resolve this first:

-5 x 2 + 7

-5 x 2 = -10

This leads to:

-10 + 7

We are now left with a simple subtraction:

-10 + 7

-10 + 7 = -3

-3 is the final result, and therefore answer A is correct.

Question #2:
$(2 \times 5^3 / 50) - (5 - 2^2)$

Answer A: 0
Answer B: 3
Answer C: 4
Answer D: -1

Explanation:
Again, this is a question that revolves around the rules of math with reference to the same rules as described in the previous question. The calculation is resolved like this: We must start by analyzing the calculation, and by doing so we quickly identify the two parentheses which must be resolved first. In both parentheses, we find examples of exponents which must be resolved before multiplying or dividing. Therefore, we transpose the calculation like this:
$(2 \times 5^3 / 50) - (5 - 2^2)$

5 to the power of 3 means 5 multiplied by 5 3 times like this 5 x 5 x 5, 2 to the power of 2 in the same way means 2 x 2, and therefore, the transposed calculation looks like this:
$(2 \times 5 \times 5 \times 5 / 50) - (5 - 2 \times 2)$

We must attend to the multiplication and division before the subtractions, and we must resolve the parentheses before attending to the subtraction of the right parenthesis from the left. Reducing the left parenthesis by initially attending to the multiplication:
$(2 \times 5 \times 5 \times 5 / 50) - (5 - 2 \times 2)$

This becomes:
$(250 / 50) - (5 - 2 \times 2)$

Continuing to the left parenthesis by completing the division:
$(250 / 50) - (5 - 2 \times 2)$

The calculation now becomes:
$(5) - (5 - 2 \times 2)$

The right parenthesis consists of a subtraction followed by a multiplication, and we have to attend to the multiplication first:
$(5) - (5 - 2 \times 2)$

The calculation now becomes:
$(5) - (5 - 4)$

The subtraction in the right parenthesis must now be resolved:
$(5) - (5 - 4)$

The calculation now becomes:

```
(5) - (1)
```

Both parentheses can now be removed as there are no operators attached to them:

```
5 - 1
```

The simple subtraction is resolved to:

4

The correct answer is C.

Question #3:

What is 45% of 300

Answer A: 45
Answer B: 15
Answer C: 135%
Answer D: 135

Explanation:

This question concerns percentage calculation. Percentage means a relative value indicating hundredth parts of any quantity. For instance, 10% of 100 is 10 hundredth parts of 100 meaning:

10 / 100 x 100 which, as we remember to solve the calculation from left to right because division and multiplications are equally ordered, resolves to:

```
10 / 100 x 100
```

The calculation becomes:

```
0.1 x 100
```

The result therefore becomes:

10

But as we are to express the result in percent, the correct answer is 10%, because % means a hundredth part. Remember that we started out by translating 10% to 10 / 100.

Another example is 2% of 250. This means 2 hundredth parts of 250 and as calculation this means:

```
2 / 100 x 250
```

This calculation resolves to:

```
2 / 100 x 250
```

Attending to the leftmost calculation first:

```
0.02 x 250
```

The result becomes

5

Now the original question: what is 45% of 300. We must express the question as a calculation, and this becomes:

```
45 / 100 x 300
```

Attending to the leftmost calculation:

```
45 / 100 x 300
```

The calculation now becomes
`0.45 x 300`

Therefore, the answer is:
135 and thus answer D

Please note that answer C is incorrect as 135% means 135 hundredth or 135 / 100 which means 1.35.

Question #4:
Resolve the equation and find X:
(x - 3) / 4 + (x - 5) / 5 - (x - 3) / 3 = 1

Answer A: 15
Answer B: 5
Answer C: -4
Answer D: 10

Explanation:
This question is about reducing an equation. This is done by reducing the mathematical calculation to a point where the only operator on the left side of the equal sign is x. The general rule is that you must do whatever you are doing on both sides of the equal sign. This is logical if you look at a simple calculation. Everybody agrees that:

`2 + 3 = 5`

The expression is also true if I add 10 to each side:
`2 + 3 + 10 = 5 + 10`

Likewise, I can multiply on both sides and get:
`(2 + 3 + 10) x 4 = (5 + 10) x 4`

This calculates to:
`(15) x 4 = (15) x 4`

Or just simply:
`15 x 4 = 15 x 4`

Or even simpler:
`60 = 60`

Therefore, we can use the same rules to tackle our problem:
`(x - 3) / 4 + (x - 5) / 5 - (x - 3) / 3 = 1`

To solve this equation, we can begin by finding a common denominator for the three terms on the left side of the equation. The least common multiple of 4, 5, and 3 is 60, so we can multiply each term by the appropriate factor to get:

`60(x - 3)/4 + 60(x - 5)/5 - 60(x - 3)/3 = 1 x 60`

When operators are to the left of and/or to the right of a parenthesis, the operators can be reduced outside the parentheses. Thus, 60(x - 3)/4 means 60 x (x - 3) / 4 or 60 / 4 x (x - 3) or simply 15(x - 3), this leads to:
`15(x - 3) + 12(x - 5) - 20(x - 3) = 60`

Expanding and simplifying the parentheses:
`15x - 45 + 12x - 60 - 20x + 60 = 60`

This can be reduced by reorganizing the operators like this:
`15x + 12x - 20x - 45 - 60 + 60 = 60`
12x + 12x - 20x equals 7x and -45 - 60 + 60 equals -45, therefore the reduced equation becomes:
`7x - 45 = 60`

Adding 45 to both sides to get rid of the subtraction on the left side of the equal sign:
`7x - 45 + 45 = 60 + 45`
becomes:
7x = 105

Dividing both sides by 7:
7x / x equals 1x or just x and 105 / 7 equals 15, thus:

x = 15

Therefore, the solution to the equation is
`(x - 3) / 4 + (x - 5) / 5 - (x - 3) / 3 = 1 is x = 15`
and therefore answer A is correct.

Final words:
Now you have been introduced to GreyBirds' admission requirements, and you have been given a thorough explanation of the PPA (DISC), Raven (IQ test) and math tests.
The only thing we have not covered in this guide is the interview. The reason is that you cannot really prepare for the interview. The purpose of the interview is that we would like to get to know you on a personal level, hear about your upbringing, family, education, experience and motivation for becoming a pilot. A good math test and a high IQ do not necessarily mean that you can complete the education. We need to identify motivation and to make sure that you want to work hard. This brings us back to the quote at the beginning of this guide:

The hard working beat the talented, if the talented aren't hard working.