

Practice test¹ and Ch 7 IQ & Ch 3.1 genes

For eye color: Brown allele (an allele is a variation of a gene) is autosomal dominant and blue is autosomal recessive. (an autosome is any chromosome other than a sex chromosome). See the short video on our site if you need help with these. Homozygous means both alleles of a gene are the same. Heterozygous means the 2 alleles are different. Genotype represents the genes that you have. Phenotype represents how those genes are expressed in you.

1. If dad has brown eyes and is heterozygous for eye color, and his wife has blue eyes. What is the probability that their one son would have blue eyes? _____

2. Assume Dad is homozygous for eye color with blue eyes and mom is the same. As far as eye color, what will be the phenotype for their first born?

3. Jan and Jill are MZ twins. Jan is a lesbian and Jill is heterosexual. Fill in the blanks with the words genotypes or phenotypes:

Their _____ are the same even though their _____ are different.

4. You have a child who takes an IQ test. Compute their IQ using the formula $IQ = (\text{mental age} \div \text{chronological age}) \times 100$. Your child is 10 and scored 50 questions correct. The table below shows the average scores for a select group of students.

Age	Mean Number of Questions Correct
7	40
8	50
9	60
10	70

Your child's IQ would be _____

5. Remember the twin study design discussed in class compared MZ and DZ twin pairs. A strong genetic component would be assumed if the _____ twin pairs (MZ or DZ) were more similar than the _____ twin pairs (MZ or DZ). Fill in the 2 blanks.
6. Our prior text mentions a story of child and father who go for a walk. The girl sees a medium sized dog and shouts "dog". Dad says "that's right". Later she sees a cat and says "dog". Dad says, "no, that's a cat. The child may think "cats are small and dogs are larger". Later the child sees a Chihuahua and says "cat" and dad says "no, that's a dog". Through this process the child is forming a prototype of a dog and begins comparing individual dogs to that prototype. What can we say then about all this? Circle true or false for each.

True False a. The category of dog is an artificial/formal category.

True False b. There is no prototype for a dog because all dogs are different.

True False c. What the young child is doing in the example is forming a concept.

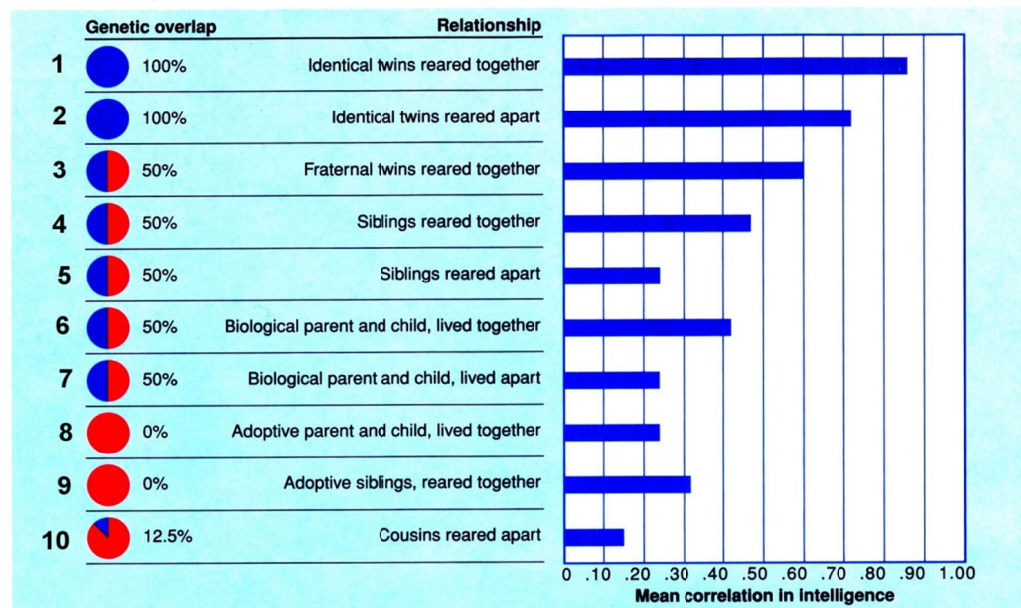
¹ Updated 1-22-20

7. See the table on IQ similarity below. Which 2 groups are most like the MZ and DZ twins in the twin study design that was mentioned in class? Answer this question by filling in the blanks below.

MZ twins are # _____ and DZ twins are # _____

Figure 9.11 page 358

IQ similarity



8. Bill bought a bookcase but it needs to be assembled. He gets the instruction manual and follows the steps..and soon he has a completed and finished bookcase. To what should we attribute his success?
- Availability heuristic
 - Framing heuristic
 - Algorithms
 - Trial and error
9. Alice and Jan were participants in a study. In order to see who goes first, they draw out a folded piece of paper from a bag that had 2 of them. The experimenter said that the larger number would go second. Alice drew 760 and Jan drew 112. The task then was to estimate how many physicians names are in the phone book. Alice guessed 1200 and Jan guessed 400. The experimenter knew that would happen: Alice drawing the larger number would give a higher estimate than Jan who drew the lower number. This was an example of what bias or heuristic?
10. If you have ever been without a screwdriver and took a dime out of your pocket and used it to loosen a screw, then you did not let which of the following be a barrier to your thinking?
- Animism
 - Inhibition
 - Functional fixedness
 - Disjunctive thinking

11. A researcher used the twin study design to see if homosexuality is heritable. He gets a group of MZ twins and DZ twins and asks each of them if they are gay or not. The data is presented in the table below. Is there evidence that homosexuality is heritable?

(circle one)

- a. Yes b. No c. It is inconclusive d. It doesn't matter because it doesn't make sense to use a twin study design for this question.

MZ Twins			DZ Twins	
Twin #1	Twin #2		Twin #1	Twin #2
Y	Y		Y	N
N	N		Y	N
N	N		N	Y
Y	Y		N	N
Y	N		N	Y

12. Channel believes that during a full moon there is an increase in admissions to the emergency room where she works. She believes that a full moon makes you do crazy things. When she was asked for evidence she recalled several instances when there was a full moon and she had crazy people come in. But what she DIDN'T say anything about was how often crazy people came in when the moon wasn't full. It seemed she didn't even think about that. If it turns out that her belief is false, it is a good example of:

- a. representative heuristic b. framing effect, c. confirmation bias. d. a problem with reliability.

13. Researchers in 1989 predicted that mock jurors would rate a witness to be **more** deceptive if the witness testified truthfully *before* lying than when the witness was caught lying first before telling the truth. If the _____ heuristic played a role in this, lying second would remain in jurors' minds (since it was more recent) and they would most likely remember the witness lying over the truthfulness. To test the hypothesis, 312 university students played the roles of mock jurors and watched a videotape of a witness presenting testimony during a trial. Results confirmed the hypothesis, as mock jurors were most influenced by the most recent act. What heuristic is this?
- _____

14. Bob is an opera fan who enjoys touring art museums when on holiday. Growing up, he enjoyed playing chess with family members and friends. Which situation is more likely?

- a. Bob plays trumpet for a major symphony orchestra
b. Bob is a farmer

15. A patient considering an experimental treatment for their advanced cancer was told either a) that the treatment kills 75% of people, or b) that 25% of people survive after the treatment. The doctor finds that when people are told “b”, they are more likely to sign up for the treatment. He knows this

is an example of a _____ .

Tie Breaker

1. See the table above that shows 4 children and the number correct they each scored on an IQ test at age 12 and again at age 13 and again at age 14.
 The average for all 12 year-olds was 9
 The average for all 13 year-olds was 12
 The average for all 14 year-olds was 16

According to the more modern method of determining IQ that used the bell score, which student(s) had an IQ increase from age 12 to age 13 and again from age 13 to 14?

name	# correct at age 12	# correct at age 13	# correct at age 14
Jim	8	12	14
Nancy	9	13	15
Betty	9	11	18
Jaime	8	12	17

-
2. Beck Depression Inventory (BDI) is a brief test that purports to measure your level of depression. If you want to know about how you score and what it means, you can add up the points and use the table below. The table was derived by giving the BDI to hundreds of people -- some real depressed, some not-at-all depressed, and many in between.

Total Score Levels of Depression

0-10 = These ups and downs are considered normal

11-16 = Mild mood disturbance

17-20 = Borderline clinical depression

21-30 = Moderate depression

31-40 = Severe depression over

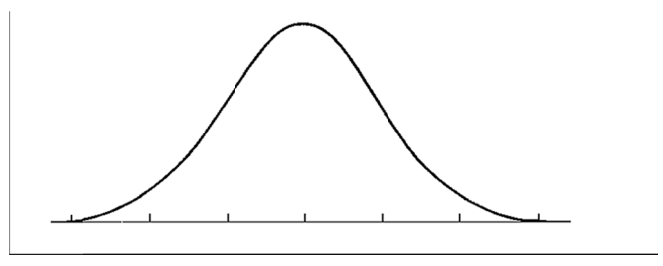
40 = Extreme depression

A PERSISTENT SCORE OF 17 OR ABOVE INDICATES THAT YOU MAY NEED TREATMENT.

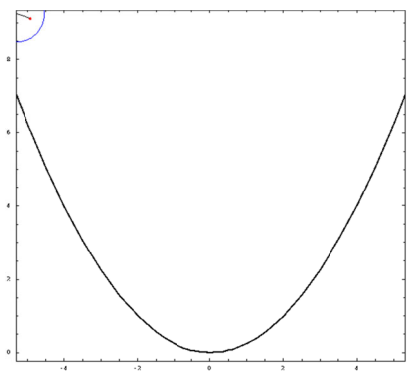
What the table does is help you understand what various scores mean. In that vein we would call them

3. If height is normally distributed then a frequency distribution with frequency on the y axis and possible heights on the x axis would yield a curve that we would look like which of the below?

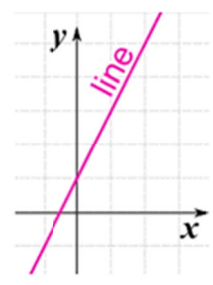
a.



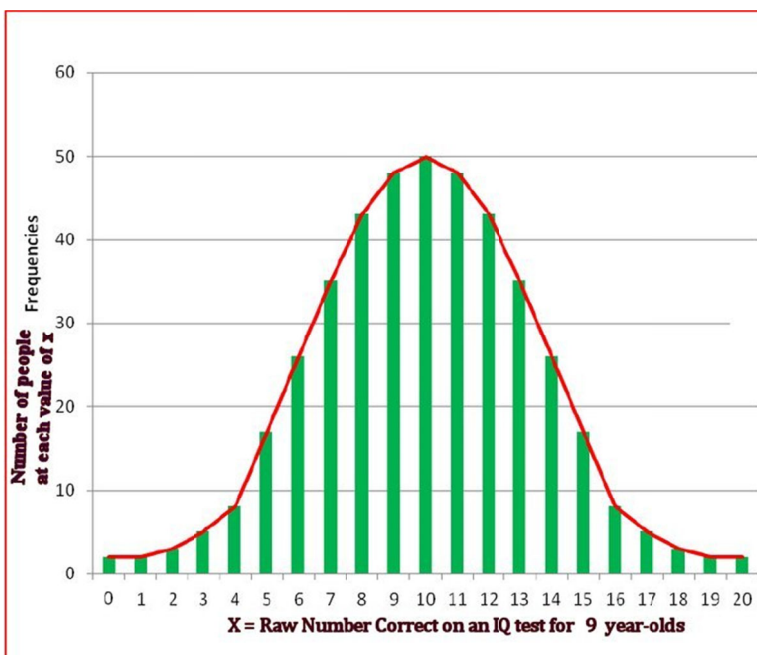
b.



c.



4. Jack believes the world is a dangerous place and you can't trust other people. What helps sustain this belief is that he can remember all the times people have screwed him and lied to him, but can't remember and doesn't pay attention to all the times people have tried to help him. What bias are we talking about here?



5. See the Frequency Distribution of Raw Scores at the right on an IQ test for 9 year-olds. Mary is a 9 year-old who took this test and scored 11 correct. What is your best guess as to her IQ score

- a. 100
- b. 108
- c. 95
- d. Nothing can be said because there is not enough data to answer the question.

6. Now see the frequency distribution of raw scores on the same test but this time the students were one year older – 10 year-olds. Mary again scored an 11. What can be said about Mary's IQ at age 10?
- a. Her IQ stayed the same from age 9 to age 10
 - b. Her IQ went down from age 9 to age 10.
 - c. Her IQ went up from age 9 to age 10.
 - d. Our best guess as to her IQ at age 10 is that it is about 110.

