



Samples from the 2008-2009 DemiDec Workbooks

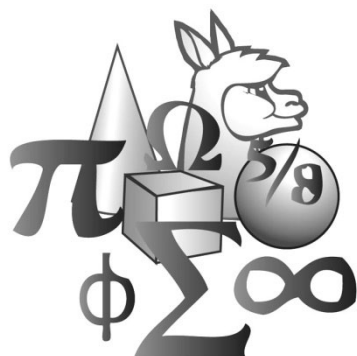
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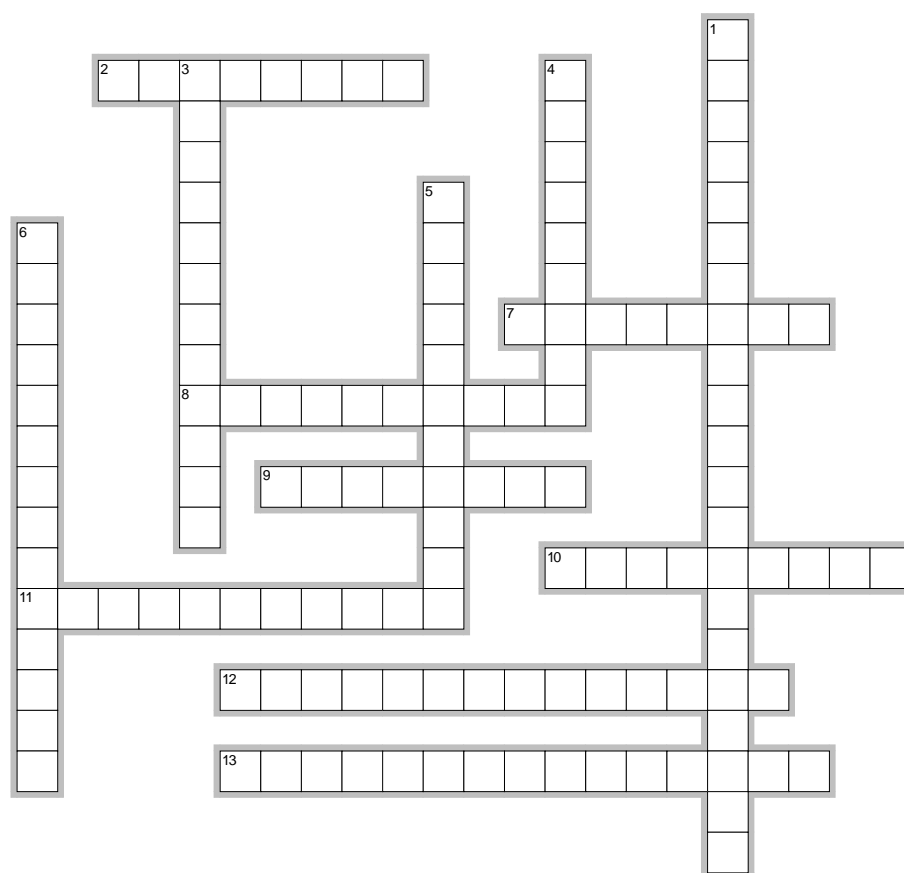


II. Algebra

Thirty percent of the questions on competition exams should come from this topic. Though most of it is covered in a standard high school curriculum, USAD always manages to find some fairly obscure subject matter here and there.

2.01 SOLVING POLYNOMIAL EQUATIONS: CROSSWORD

Propertize this. Using the clues illustrating algebraic properties, fill in the following crossword.



Across

2. Property: $a = b \Leftrightarrow a + c = b + c$
7. Formula: $(x + y)^n = \sum_{i=0}^n \binom{n}{i} x^{n-i} y^i$
8. Property: $a = b, b = c \Leftrightarrow a = c$
9. Identity: $a + 0 = a$
10. Property: $a = b \Leftrightarrow b = a$
11. Property: $a(bc) = (ab)c$
12. Identity: $a \times 1 = a$
13. Two Words: $a + (-a) = 0$

Down

1. Two Words: $a \times \frac{1}{a} = 1$
3. Property: $a(b + c) = ab + ac$
4. Property: $a = a$
5. Property: $a + b = b + a$
6. Property: $a = b \Leftrightarrow ac = bc$

2.05 SOLVING POLYNOMIAL EQUATIONS: COMPARISON

Quadratic profiling. Determine the character of the roots of each of the following polynomials. The first one has been done for you.

POLYNOMIAL	RATIONAL	IRRATIONAL	IMAGINARY	EQUAL	UNEQUAL
$x^2 + 4$			x		x
$16x^2 - 8x + 1$					
$15x^2 + 17x + 4$					
$2x^2 - 5x + 1$					
$3x^2 - 5x + 6$					
$2\sqrt{3}x^2 - 3\sqrt{5}x + 4$					
$441x^2 + 798x + 361$					
$99x^2 + 33x + \frac{7}{2}$					

1.09 ANALOGIES (pages 14-24)

Just when you thought it was safe to go back in the workbook. Here's an old time favorite. For each comparison below, fill in the missing information. An example has been provided.

Example: David Cook : Resounding victory :: David Archuleta : Devastating defeat

1. Lamarck : *Philosophic Zoologique*:: _____ : *Principles of Geology*
2. _____ : *On the Origin of Species* :: Mivart : *Genesis of Species*
3. Dobzhansky : _____ :: Huxley : *Evolution: the Modern Synthesis*
4. Robson and Richard : *The Variation of Animals in Nature* :: _____ : *The Material Basis of Evolution*
5. Wallace : _____ :: Simpson : *Tempo and Mode in Evolution*
6. Cambrian : Paleozoic :: Tertiary : _____
7. modern humans : natural selection :: domesticated wheat : _____
8. a random extra limb : _____ :: camouflage : adaptation
9. “ _____ ” : Lamarck :: “evolution by natural selection” : Darwin

1.10 CHARTING (pages 16-28)

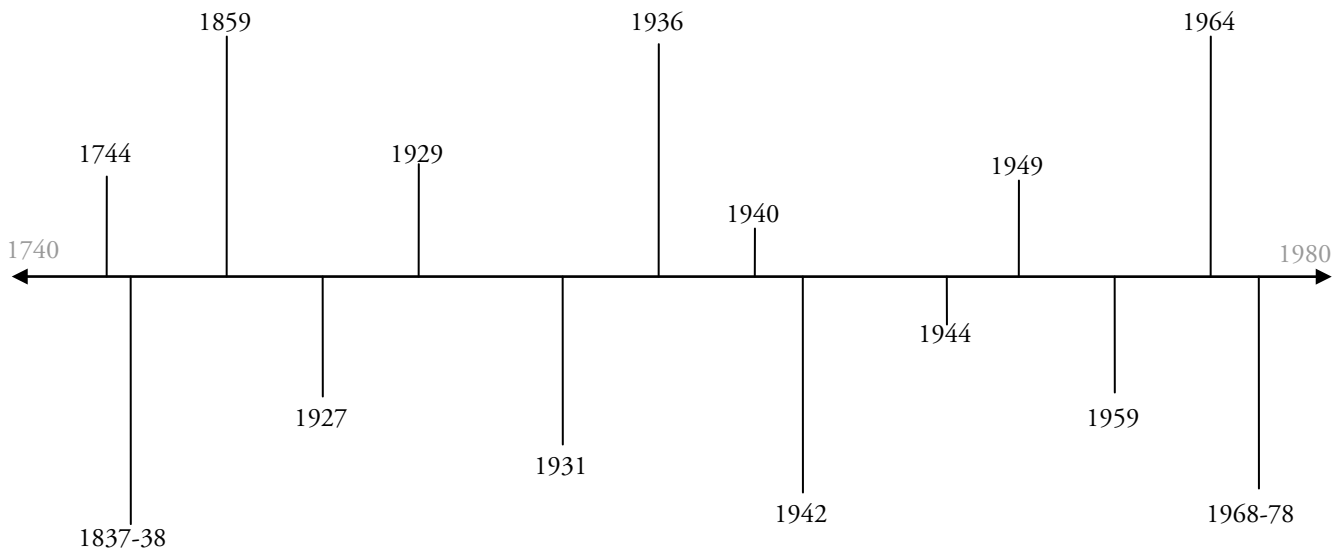
Check...check one, check two. For each item below, determine whether it belongs in the Darwinian school of thought or in the revised theory known as the Modern Synthesis. An example has been provided.

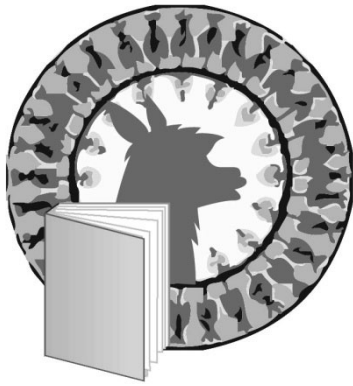
Darwinian	Modern Synthesis	Feature
	√	It was developed in the 1930s and 40s.
		It helped develop the idea of natural selection.
		It drew much of its original evidence from a voyage on the <i>HMS Beagle</i> .
		It is also called Neo-Darwinism.
		It incorporates pangenesis.
		It incorporates genetics.
		It uses a “blending” theory of inheritance.
		It was initially viewed as conflicting with Mendelian inheritance.
		It rejected macromutations as the main explanation of speciation.
		It is concerned with changes in allele frequency.

1.13 TIMELINE (pages 16-23)

This then that then that. Fill in the timeline below with the information in the event bank. Each year (or span of years) corresponds to an event in the table below. Years along the timeline are not evenly distributed.

EVENT BANK		
A. The Princeton symposium is published	F. Lamarck is born	J. Influential Russian geneticist Chetverikov arrested
B. Wright's four-volume treatise is published	G. Ford's <i>Ecological Genetics</i> published	K. Wright's paper is published
C. Muller and Simpson publish essays on Darwinism	H. Goldschmidt's book published	L. Year following the end of the <i>Beagle</i> voyage
D. Dobzhansky moves to the United States	I. <i>Tempo and Mode in Evolution</i> published	M. Huxley's book on the modern synthesis published
E. Goldschmidt leaves Germany		N. Darwin publishes his theory





I. Bless Me, Ultima

Chapters 1 - 4

Bienvenidos to the world of Antonio Márez y Luna. This section covers the first four chapters of the novel, in which Anaya introduces the primary characters, Antonio's prophetic dreams begin, and Lupito's death stirs questions in his mind.

1.01 CHRONOLOGY (Chapter 1)

Requiem for the chicken and the egg. Order the events in Antonio's first mystical dream. Insert numbers for the correct order in which these events take place. Then, rub the sleep from your eyes and answer the clarifying question in each bubble.

a. _____ afterbirth package assembled for the Virgin
Who does this?

b. _____ soul flies over the adobe huts
Whose soul is this?

c. _____ whisky, rope, and a guitar is offered to the infant
Which group of crazy people did this?

d. _____ old woman declares only she knows the fate of the child
What prompts her to say this?

e. _____ fruit is offered; mud is rubbed on the baby's head
Who was responsible for this?

1.02 COMPARISON (Chapters 1-2)

Pick a card, any card. For each statement below, determine if the quote from the book is a premonition of Antonio's destiny as an understanding priest, as his mother wants him to become, or a rough, rowdy man of the llano, like his father. Circle 'L' for Luna and 'M' for Márez. An example has been provided.

- L M **Example:** God had power. He spoke and the thunder echoed through the skies.
- L M My bare feet felt the throbbing of the earth and my body trembled with excitement.
- L M "But then," I whispered, "who will hear my confession?"
- L M It was very sad to see my father cry, but I understood it, because sometimes a man has to cry.
Even if he is a man.
- L M Father says that the town steals our freedom.
- L M The sun was good.
- L M I saw for the first time the beauty of our wild hills.
- L M I had started praying to myself from the moment I heard the first shot, and I never stopped praying until I reached home.
- L M He builds highways that stretch to the sun, and we must travel that road with him.

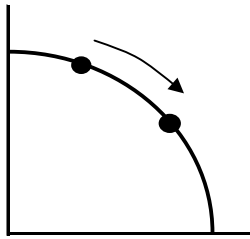
1.03 TRUE OR FALSE (Chapters 1-2)

The truth will out. Scrutinize the following statements to determine which are verifiable and which are false testimony. If you catch an erroneous account, don't make much ado about nothing; just correct it to make it true.

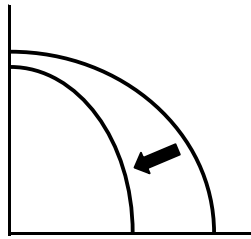
- T F **Example:** Gabriel and María ~~disagreed about whether to let Ultima live out her days in their home.~~ *Gabriel and María agreed that Ultima should live in their home.*
- T F 1. María wishes she were living on the llano with the rest of the vaqueros.
- T F 2. Antonio clams up when Ultima arrives, but his sisters are much more forward.
- T F 3. As a *curandera*, Ultima's primary objective is to curse evil individuals.
- T F 4. Ultima's companion, an owl, accompanies her to the Márez residence.
- T F 5. Lupito murders the sheriff by the river.
- T F 6. By screaming, Antonio tries to stop the men from shooting Lupito.

1.17 MATCHING

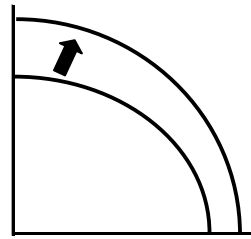
Explain yourself. Match the letter of each drawing to the explanation it BEST represents.



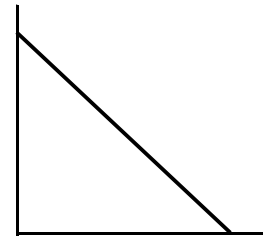
a.



b.



c.



d.

1. _____ the result of an improvement in technology
2. _____ production possibilities for two goods that are very similar
3. _____ a trade-off
4. _____ the result of a loss of quality in one of the factors of production

Present, Future, Intended, and Unintended Consequences

Every decision we make has consequences. Some can be seen as soon as a decision has been made; others can't be seen until much later. Some consequences are desirable, but some are undesirable.

Economic Consequences

Present consequences are the immediate consequences of a decision. With present consequences, we can often see the cause-and-effect relationship between the decision that was made and the consequence that resulted. In fact, we usually expect the present consequences of a decision. A politician hoping to be re-elected must produce results that are visible before his or her next election.

As you might have guessed, **future consequences** are consequences further in the future than present consequences. When enough time elapses, we may have difficulty seeing the relationship between a decision that is made and its future consequences. We don't always expect the future consequences of a decision.

Intended consequences are the desired results of a decision. They are the reason a decision is made. Often, intended consequences are present consequences, but the terms are not necessarily synonymous. In the example of "price ceilings" on rent, the intended consequence was the present consequence; the laws were passed so that tenants could afford to live. In another example, the Federal Deposit Insurance Corporation (FDIC) was created to insure bank deposits, up to a certain amount. The intended consequence was that people would feel safe depositing their money in a bank knowing that even if the bank fails, they'll get their money back. It would therefore prevent, in the future, another run on the banks like the one that precipitated the Great Depression.

Unintended consequences are the unwanted results of a decision. Sometimes, we expect certain unintended consequences, but the intended consequences outweigh them and the decision is made anyway. Other times, unintended consequences are future consequences.

1.18 IN BRIEF

Short answer. Write a brief response to each of the following questions.

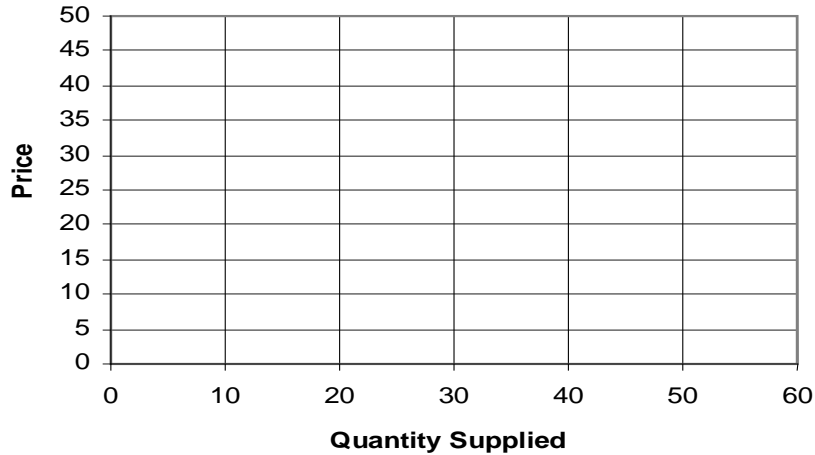
1. What is a present consequence?

2.06 APPLYING KEY CONCEPTS

Connect the dots. Plot the data from the table into the grid, below. When you've finished, connect the dots to form a supply curve.

Price	Quantity Supplied
\$15	5
\$20	6
\$25	7
\$30	10
\$35	18
\$40	30
\$45	50

Supply Curve for Toasters

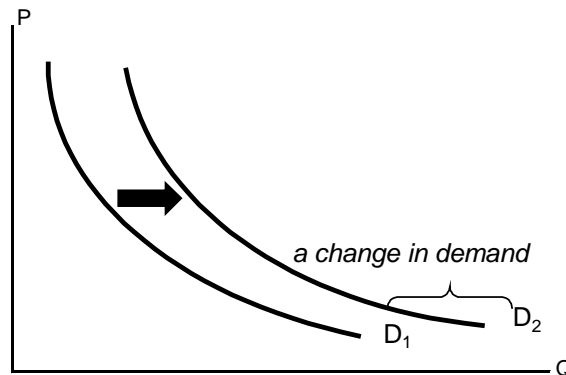


Changes in Demand

Supply and demand do not exist in a vacuum. Some markets are fickle. One of the challenges of economic analysis is to predict how an event will affect a market. To do so, we need to separate supply and demand, and analyze the effects of a change on each of them.

A demand curve represents the quantity demanded of a given product at each price within a range of prices. **When there is a change in demand, the entire demand curve shifts to the right or left.** Be sure not to confuse a shift in the demand curve with a change in quantity demanded (a movement along the curve).

Movement of the Demand Curve



A change in demand—or a shift in the curve—can result from any of a handful of factors. These are the most important factors:

A change in consumer income. When consumers make more money, they have more money to spend. For normal goods, an increase in consumer income will result in an increase in demand. For inferior goods, an increase in consumer income will actually result in a decrease in demand. This is known as the **income effect**.



I. Mexican Economic History

This workbook section covers pages 4-8 in the official curriculum guide. It discusses the history of the Mexican economy up until 1995.

1.01 CHARTING (page 4)

Sailing into charted territory. Select whether each of the given facts applies to the Aztecs, the Mayas, or both. The first row is done for you as an example.

Aztecs	Mayas	Facts
√	√	Indigenous group that existed in pre-colonial Mexico
		Lived in Central Mexico
		Relied on agriculture for food
		Used canals for agricultural purposes
		Used “slash-and-burn” agriculture in the tropical rain forest
		A strong agricultural economy made it possible for rulers to collect tribute payments
		Capital city was Tenochtitlán
		Dominated southern Mexico
		Had an absolutist political organization
		Utilized favorable conditions in the Valley of Mexico to grow food

1.05 COMPARISON (pages 4-6)

The misfit is king. In each group below, one item does not belong. Identify which one it is and cross it out, and explain your reasoning.

<p>Example: “My Love” “SexyBack” “What Goes Around... Comes Around” “Justify My Love”</p>	<p>Justin Timberlake had three #1 hits off his 2006 solo album <i>LoveSounds</i>: “My Love,” “SexyBack,” and “What Goes Around... Comes Around.” “Justify My Love” was a #1 single for Madonna in the early 1990s.</p>
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<p>henequen slaves sugar tobacco</p>	
<p>gold lead silver copper</p>	
<p>rich soil temperate climate tropical rain forest plentiful water</p>	
<p>railroad construction foreign investment telegraph construction destruction of railroad tracks</p>	
<p>IFI loans increased income taxes increased corporate taxes government bonds</p>	

5.02 CHARTING (pages 29-30)

Pass the pipe, please. Fill in the blanks in the chart below. You will have to identify each of the Incan instruments and provide several distinguishing characteristics or functions of each instrument.

INSTRUMENT	CHARACTERISTICS/FUNCTIONS
1. <i>pincollos or quenaquenas</i>	a. b. had three equidistant holes and later, five unequally spaced holes c.
2.	a. panpipes made of cane, clay, stone or silver b. c. show up frequently in visual representations of Inca culture d.
3. <i>qquepas</i>	a. b. material determined its function, e.g. metal trumpets were used in sacred performances, while conch shell trumpets were used in battle c. d.

5.03 COMPARISON (page 30)

V is for Vespa. Vespers and the auto sacramentale were important genres of church performance in colonial South America. Each of the statements below describes one of these services. Decide which, and circle the appropriate letter.

- | | | |
|---|---|--|
| V | A | 1. performed outside of the church |
| V | A | 2. takes place every day at sunset |
| V | A | 3. consists of dramas accompanied by music |
| V | A | 4. includes the singing of psalms in a prescribed order |
| V | A | 5. part of the Divine Office |
| V | A | 6. includes morality plays of the struggle between good and evil |
| V | A | 7. includes antiphons sung in plainchant |
| V | A | 8. the Magnificat is part of its service |
| V | A | 9. sometimes incorporates word painting |