To the Student:

After your registration is complete and your proctor has been approved, you may take the Credit by Examination for MATH 6A.

WHAT TO BRING

- several sharpened No. 2 pencils
- lined notebook paper
- graph paper
- straightedge ruler

ABOUT THE EXAM

The examination for the first semester of Mathematics, Grade 6, consists of 40 questions (35 multiple choice questions worth 2 points each and 5 short-answer questions worth 6 points each). The exam is based on the Texas Essential Knowledge and Skills (TEKS) for this subject. The full list of TEKS is included in this document (it is also available online at the Texas Education Agency website, http://www.tea.state.tx.us/). The TEKS outline specific topics covered in the exam, as well as more general areas of knowledge and levels of critical thinking. Use the TEKS to focus your study in preparation for the exam.

The examination will take place under supervision, and the recommended time limit is three hours. A 6th grade mathematics chart is included in the exam papers for your reference. You may not use any other notes or books. A percentage score from the examination will be reported to the official at your school.

In preparation for the examination, review the TEKS for this subject. All TEKS are assessed. It is important to prepare adequately. Since questions are not taken from any one course, you can prepare by reviewing any of the state-adopted textbooks that are used at your school. The textbook used with our MATH 6A course is:

Burger, et al., *Texas Go Math!*, Grade 6. (2015) Houghton Mifflin Harcourt.

Good luck on your examination!

Texas Essential Knowledge and Skills covered on this exam:

- 6.1A, B, C, D, E, F, G
- 6.2A, B, C, D, E
- 6.3A, B, C, D, E
- 6.4A, B, C, D, E, F, G
- Rational Numbers
- Number Operations:
    - ◊ Multiplying and Dividing Fractions
    - ◊ Multiplying and Dividing Decimals
    - ◊ Adding and Subtracting Integers
    - ◊ Multiplying and Dividing Integers
- Proportionality: Ratios and Rates
    - ◊ Representing Ratios and Rates
    - ◊ Applying Ratios and Rates
    - ◊ Percents

MATH 6A Practice Exam

Part A (2 points each)

Read each question carefully. When you have solved the problem, write the letter of each answer in the space provided on the answer sheet A sixth-grade math chart is provided at the back of this exam.

1. Alessandra has a special deck of cards. Each card has a different integer on it. The cards are –1, –3, 5, 7, and –8. How many cards have a value that is less than –4?

   A. none of these
   B. one
   C. two
   D. three

2. Which set of rational numbers is correctly ordered from least to greatest?

   A. –0.551, –0.550, –0.505, –0.555
   B. –0.555, –0.550, –0.551, –0.505
   C. –0.555, –0.551, –0.550, –0.505
   D. –0.505, –0.550, –0.551, –0.555

3. Tamar wants to select an integer that is closer to zero than –3 on the number line. How many possible choices does she have?

   A. one
   B. two
   C. three
   D. four

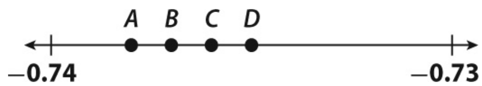
continued →

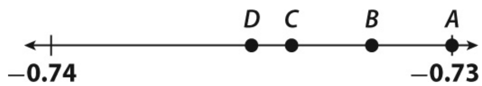
4.

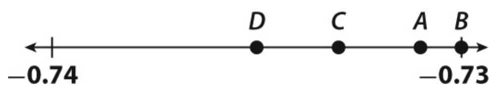
Point	Coordinate
A	–0.731
B	–0.730
C	–0.733
D	–0.735

Which number line shows the correct placement of the points listed in the table above?

A. 

B. 

C. 

D. 

5. Which of the following lists of numbers is ordered from greatest to least?

A. $-\frac{5}{8}$, –0.61, –0.59, $-\frac{4}{7}$

B. $-\frac{5}{8}$, $-\frac{4}{7}$, –0.61, –0.59

C. $-\frac{4}{7}$, $-\frac{5}{8}$, –0.59, –0.61

D. $-\frac{4}{7}$, –0.59, –0.61, $-\frac{5}{8}$

6. **Martina's Inequalities**

$-2 < 3$	$2 < 3$	$2 < -3$	$-4 < -5$
$-4 < 3$	$1 < 0$	$0 < -1$	$-3 < -2$

Martina gets one point for each pair of integers she correctly compares. She wrote the statements above. How many points did Martina receive?

A. 2
B. 3
C. 4
D. 5

7. Kevin listed all of the integers with absolute value less than 2. Bria listed all of the integers with absolute value less than 4. How many more integers are on Bria's list than on Kevin's list?

   A. two
   B. four
   C. seven
   D. nine

8. Jo wrote the numbers $2\frac{1}{2}$, $3\frac{1}{7}$ and $1\frac{5}{6}$ in the form $\frac{a}{b}$.What is the greatest numerator that Jo wrote?

   A. 5
   B. 7
   C. 11
   D. 22

9. Mrs. Haines paid \$43.94 for 12.7 gallons of gas. She used some credit card points to get 52¢ off per gallon. What is the original price of the gas per gallon?

   A. \$3.46
   B. \$3.52
   C. \$3.98
   D. \$4.08

10. The length of a living room rug is $12\frac{1}{2}$ feet, and the width is $10\frac{3}{4}$ feet. There is a loveseat that covers $12\frac{1}{2}$ square feet of the rug and an entertainment center that covers 6 square feet. What is the area of the rug that can be seen?

   A $115\frac{7}{8}$ ft^2
   B $117\frac{1}{2}$ ft^2
   C 122 ft^2
   D 124 ft^2

continued →

11. A caterer prepared a large ham that weighed $15\frac{1}{8}$ pounds. After cooking, the chef trimmed the ham and removed the bone, so the ham was $1\frac{3}{5}$ pound lighter. How many complete $\frac{5}{16}$-pound servings can she provide from this ham?

A. 43

B. $43\frac{7}{25}$

C. 44

D. 48

12. Which expression has the same value as (–5)(–3) + (–8) – (–17)?

A. (–4)(6)
B. (–6)(4)
C. (–8)(3)
D. (–3)(–8)

13. Michele has a $1\frac{2}{3}$-pound box of cereal. She wants to make equal servings that completely use all the cereal. Which of these serving amounts would have no left-over cereal?

A. $\frac{1}{12}$ lb

B. $\frac{1}{10}$ lb

C. $\frac{1}{8}$ lb

D. $\frac{1}{5}$ lb

14. Juan bought a box of laundry soap that weighed 15.6 pounds. One 0.15-pound scoop of soap is enough to wash a regular load of laundry, but 2 scoops are needed to wash heavy work clothes. How many pounds of soap are left after Juan washes 8 regular loads and 5 heavy loads of laundry?

A. 1.95 lb
B. 12.45 lb
C. 12.9 lb
D. 13.65 lb

continued →

15. A swimming pool is 28.3 feet long and 18.6 feet wide. A section of the pool 10.1 feet by 4.7 feet is roped off for children only. What area of the pool is available for adults?

    A. 47.47 ft^2
    B. 47.89 ft^2
    C. 478.91 ft^2
    D. 526.38 ft^2

16. Which product is positive?

    A. (–2)(–6)(–8)
    B. (–4)(–5)(–7)
    C. (–9)(7)(3)
    D. (–5)(9)(–4)

17. Shari purchased 15 pounds of flour at $0.42 per pound, 8 pounds of butter at $3.99 per pound, 1 pound of salt at $0.67, and 30 pounds of cherries at $1.49 per pound. How much money did Shari spend?

    A. $83.59
    B. $82.59
    C. $76.62
    D. $93.59

18. A bag of apples weighs $7\frac{7}{8}$ pounds. By weight, $\frac{1}{18}$ of the apples are rotten. What is the weight of the good apples?

    A. $\frac{4}{72}$ pounds
    B. $\frac{7}{16}$ pounds
    C. $7\frac{7}{16}$ pounds
    D. $7\frac{7}{8}$ pounds

19. When two positive fractions are multiplied, is the product less than the factors? *(Do not use improper or mixed fractions.)*

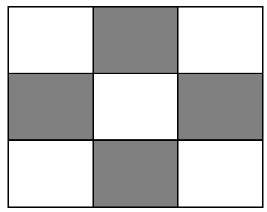
    A. never
    B. always
    C. sometimes
    D. not possible

continued →

20. Beatrix ate 21 raisins. This represents 30% of the box of raisins. How many raisins were originally in the box?

A. 7
B. 30
C. 51
D. 70

21. Approximately what percent of the large square below is shaded?



A. 33%
B. 40%
C. 44%
D. 55%

22. The ratio of green marbles to yellow marbles in Toby's bag is equal to 2:3. What percent of the marbles in the bag are green marbles?

A. 40%
B. 50%
C. 60%
D. $66\frac{2}{3}\%$

23. Kendra bought a piece of fabric that was 14 feet long. Lisa bought a piece of fabric that was 3 yards long. Kendra wanted to cut her fabric so that it was the same length as Lisa's. How many feet did she need to cut off?

A. 1 ft
B. 2 ft
C. 4 ft
D. 5 ft

24. Tom and Jasper have the same percentage of blue marbles in their bags of marbles. Tom has 5 blue marbles and 20 total marbles. Jasper has 12 blue marbles. How many of Jasper's marbles are **not** blue?

A. 12
B. 24
C. 36
D. 48

continued →

25. The ratio of boys to girls in Mr. Chen's class is 4 to 5. Which of the following **cannot** be the total number of students in Mr. Chen's class?

A. 18
B. 20
C. 27
D. 36

26. Alexa and Brent are each working on a 30-question assignment. Alexa completed 20% of the questions. Brent completed 30% of the questions. How many more questions did Brent complete?

A. 1
B. 3
C. 6
D. 9

27. Martina filled a 100-mL container with water. Simone filled a 1.2-L container. How much more water did Simone have in her container?

A. 0.1 L
B. 0.2 L
C. 0.9 L
D. 1.1 L

28. Brian counted 15 red cars and 20 blue cars in the parking lot. If the number of red cars stays the same, how many more blue cars would need to be added so the ratio of red cars to blue cars is 1 to 2?

A. 10
B. 15
C. 20
D. 30

29. Wendy can ride her bike 0.8 miles in 6 minutes. How many miles can she ride bike in 1.5 hours?

A. 6 mi
B. 7.5 mi
C. 12 mi
D. 15 mi

30. Demetra earns $9 per hour working at the bakery. She earns $7 per hour babysitting. If Demetra works for 4 hours at the bakery and babysits for 5 hours, how much money would she earn?

A. $35
B. $36
C. $71
D. $81

continued →

31. Tyrone purchased a container of juice that contains 150 calories. The label says that 70% of the calories are from carbohydrates. How many calories are **not** from carbohydrates?

A. 70 calories
B. 45 calories
C. 105 calories
D. 150 calories

32. Wu purchased a container of peanuts that weighs 5 kilograms. Mindy purchased a container of peanuts that weighs 4,800 grams. How many more grams of peanuts did Wu purchase?

A. 2000 grams
B. 200 grams
C. 20 grams
D. 2 grams

33. **Favorite School Subject**

Math	15%
Science	20%
English	35%
History	30%

Jenn recorded the favorite school subject of students at her school. She surveyed 700 students. How many more students chose English than chose Science?

A. 140 students
B. 210 students
C. 245 students
D. 105 students

34. During the election for class president, 40% of the students voted for Gerardo, 35% of the students voted for Leandro, and 25% of the students voted for Juju. 70 students voted for Leandro. How many more students voted for Gerardo than for Juju?

A. 200 more students
B. 120 more students
C. 30 more students
D. 20 more students

35. The ratio of white pens to blue pens in Jake's drawer is 4 to 3. If Jake has 42 pens, what is the number of white pens in his drawer?

A. 12 white pens
B. 24 white pens
C. 30 pens
D. 36 pens

Part B (6 points each)

Read each question carefully. Be sure to set up your problem, work it out, and label your final answer(s) correctly. Partial credit will be given when possible. A sixth grade math chart is provided at the back of this exam.

36. **Times for 200-meter Dash**

Runner	**Time (s)**
Allison	24.22
Carmelita	24.12
Shanay	23.98
Britney	23.95

Four runners ran the 200-meter dash. The times are shown in the table above. Which runner had the fastest time?

37. On the track team, $\frac{3}{5}$ of the members are boys. Of these boys, $\frac{4}{7}$ are sixth-graders. Of the sixth-grade boys on the team, $\frac{1}{3}$ are runners. What fraction of the track team are sixth-grade boy runners?

continued →

38. Over a 12-hour period from 8 P.M. to 8 A.M., the temperature fell at a steady rate from 8°F to –16°F. If the temperature fell at the same rate every hour, what was the temperature at 4 A.M.?

39. What number is 25% of 35% of 400?

continued →

40. **Juice Containers**

Student	Container Size
Darius	2.45 L
Jessie	299 mL
Kyle	3.5 L
Mark	1,493 mL
Faisal	4,391 mL

Students in Mr. Feld's class have juice containers of different sizes, as shown in the table. Which of the students has the largest container?

MATH CHART

LENGTH

Customary	Metric
1 mile (mi) = 1,760 yards (yd)	1 kilometer (km) = 1,000 meters (m)
1 yard (yd) = 3 feet (ft)	1 meter (m) = 100 centimeters (cm)
1 foot (ft) = 12 inches (in.)	1 centimeter (cm) = 10 millimeters (mm)

VOLUME AND CAPACITY

Customary	Metric
1 gallon (gal) = 4 quarts (qt)	1 liter (L) = 1000 milliliters (mL)
1 quart (qt) = 2 pints (pt)	
1 pint (pt) = 2 cups (c)	
1 cup (c) = 8 fluid ounces (fl oz)	

MASS AND WEIGHT

Customary	Metric
1 ton (T) = 2000 pounds (lb)	1 kilogram (kg) = 1000 grams (g)
1 pound (lb) = 16 ounces (oz)	1 gram (g) = 1000 milligrams (mg)

TIME

1 year = 365 days
1 year = 12 months
1 year = 52 weeks
1 week = 7 days
1 day = 24 hours
1 hour = 60 minutes
1 minute = 60 seconds

PERIMETER

Square	$P = 4s$
Rectangle	$P = 2l + 2w$ or $P = 2(l + w)$

CIRCUMFERENCE			
Circle	$C = 2\pi r$	or	$C = \pi d$
AREA			
Triangle	$A = \frac{bh}{2}$	or	$A = \frac{1}{2}bh$
Square			$A = s^2$
Rectangle	$A = lw$	or	$A = bh$
Parallelogram			$A = bh$
Trapezoid	$A = \frac{(b_1 + b_2)h}{2}$	or	$A = \frac{1}{2}(b_1 + b_2)h$
Circle		or	$A = \pi r^2$
VOLUME			
Cube			$V = s^3$
Rectangular prism	$V = lwh$	or	
ADDITIONAL INFORMATION			
Pi			$\pi \approx 3$

MATH 6A Practice Exam Answer Key

Part A (2 points each)

1. B
2. C
3. D
4. D
5. D
6. C
7. B
8. D
9. C
10. A
11. A
12. D
13. A
14. C
15. C
16. D
17. A
18. C
19. B
20. D
21. C
22. A
23. D
24. C
25. B
26. B
27. D
28. A
29. C
30. C
31. B
32. B
33. D
34. C
35. B

Part B (10 points each)

36. Britney
37. 4/35
38. -8°F
39. 35
40. Faisal

Texas Essential Knowledge and Skills
MATH 6: Mathematics, Grade 6

§111.26. Grade 6, Adopted 2012.

(a) Introduction.

(1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on computational thinking, mathematical fluency, and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.

(2) The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(3) The primary focal areas in Grade 6 are number and operations; proportionality; expressions, equations, and relationships; and measurement and data. Students use concepts, algorithms, and properties of rational numbers to explore mathematical relationships and to describe increasingly complex situations. Students use concepts of proportionality to explore, develop, and communicate mathematical relationships. Students use algebraic thinking to describe how a change in one quantity in a relationship results in a change in the other. Students connect verbal, numeric, graphic, and symbolic representations of relationships, including equations and inequalities. Students use geometric properties and relationships, as well as spatial reasoning, to model and analyze situations and solve problems. Students communicate information about geometric figures or situations by quantifying attributes, generalize procedures from measurement experiences, and use the procedures to solve problems. Students use appropriate statistics, representations of data, and reasoning to draw conclusions, evaluate arguments, and make recommendations. While the use of all types of technology is important, the emphasis on algebra readiness skills necessitates the implementation of graphing technology.

(4) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(b) Knowledge and skills.

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(2) Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to:

(A) classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers;

(B) identify a number, its opposite, and its absolute value;

(C) locate, compare, and order integers and rational numbers using a number line;

(D) order a set of rational numbers arising from mathematical and real-world contexts; and

(E) extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$.

(3) Number and operations. The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to:

(A) recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;

(B) determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one;

(C) represent integer operations with concrete models and connect the actions with the models to standardized algorithms;

(D) add, subtract, multiply, and divide integers fluently; and

(E) multiply and divide positive rational numbers fluently.

(4) Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:

(A) compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships;

(B) apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;

(C) give examples of ratios as multiplicative comparisons of two quantities describing the same attribute;

(D) give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients;

(E) represent ratios and percents with concrete models, fractions, and decimals;

(F) represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers;

(G) generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money; and

(H) convert units within a measurement system, including the use of proportions and unit rates.

(5) Proportionality. The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to:

(A) represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;

(B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models; and

(C) use equivalent fractions, decimals, and percents to show equal parts of the same whole.

(6) Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to:

(A) identify independent and dependent quantities from tables and graphs;

(B) write an equation that represents the relationship between independent and dependent quantities from a table; and

(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$.

(7) Expressions, equations, and relationships. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:

(A) generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization;

(B) distinguish between expressions and equations verbally, numerically, and algebraically;

(C) determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations; and

(D) generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.

(8) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:

(A) extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle;

(B) model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes;

(C) write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers; and

(D) determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.

(9) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to represent situations. The student is expected to:

(A) write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;

(B) represent solutions for one-variable, one-step equations and inequalities on number lines; and

(C) write corresponding real-world problems given one-variable, one-step equations or inequalities.

(10) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to solve problems. The student is expected to:

(A) model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and

(B) determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.

(11) Measurement and data. The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. The student is expected to graph points in all four quadrants using ordered pairs of rational numbers.

(12) Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to analyze problems. The student is expected to:

(A) represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots;

(B) use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;

(C) summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; and

(D) summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution.

(13) Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to solve problems. The student is expected to:

(A) interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots; and

(B) distinguish between situations that yield data with and without variability.

(14) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:

(A) compare the features and costs of a checking account and a debit card offered by different local financial institutions;

(B) distinguish between debit cards and credit cards;

(C) balance a check register that includes deposits, withdrawals, and transfers;

(D) explain why it is important to establish a positive credit history;

(E) describe the information in a credit report and how long it is retained;

(F) describe the value of credit reports to borrowers and to lenders;

(G) explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study; and

(H) compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income.

Source: The provisions of this §111.26 adopted to be effective September 10, 2012, 37 TexReg 7109.