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Links under option 3 are direct links to building exercises for English and Math.

English

Basic Grammar Punctuation and Capitalization Spelling

Math

Basic Operations Exponents Fraction Word Problems Percentages and Ratios

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Questions 1 through 7 refer to the following passage:

In the 16th century, an age of great marine and terrestrial exploration, Ferdinand Magellan led the first expedition to sail around the world. As a young Portuguese noble, he served the king of Portugal, but he became involved in the quagmire of political intrigue at court and lost the king's favor. After he was dismissed from service by the king of Portugal, he offered to serve the future Emperor Charles V of Spain.

A papal decree of 1493 had assigned all land in the New World west of 50 degrees W longitude to Spain and all the land east of that line to Portugal. Magellan offered to prove that the East Indies fell under Spanish authority. On September 20, 1519, Magellan set sail from Spain with five ships. More than a year later, one of these ships was exploring the topography of South America in search of a water route across the continent. This ship sank, but the remaining four ships searched along the southern peninsula of South America. Finally they found the passage they sought near 50 degrees S latitude. Magellan named this passage the Strait of All Saints, but today it is known as the Strait of Magellan.

One ship deserted while in this passage and returned to Spain, so fewer sailors were privileged to gaze at that first panorama of the Pacific Ocean. Those who remained crossed the meridian now known as the International Date Line in the early spring of 1521 after 98 days on the Pacific Ocean. During those long days at sea, many of Magellan's men died of starvation and disease.

Later, Magellan became involved in an insular conflict in the Philippines and was killed in a tribal battle. Only one ship and 17 sailors under the command of the Basque navigator Elcano survived to complete the westward journey to Spain and thus prove once and for all that the world is round, with no precipice at the edge.

1. The 16th century	was an age of	f great	exploration.

A. cosmic

B. land

C. mental

D. common man
E. None of the above
2. Magellan lost the favor of the king of Portugal when he became involved in a political
A. entanglement
B. discussion
C. negotiation
D. problem
E. None of the above
3. The Pope divided New World lands between Spain and Portugal according to their location on one side or the other of an imaginary geographical line 50 degrees west of Greenwich that extends in a direction.
A. north and south
B. crosswise
C. easterly
D. south east
E. north and west
4. One of Magellan's ships explored the of South America for a passage across the continent.
A. coastline
B. mountain range
C. physical features
D. islands
E. None of the above
5. Four of the ships sought a passage along a southern
A. coast
B. inland

C. body of land with water on three sides
D. border
E. Answer not available
6. The passage was found near 50 degrees S of
A. Greenwich
B. The equator
C. Spain
D. Portugal
E. Madrid
E. Madrid7. In the spring of 1521, the ships crossed the now called the
7. In the spring of 1521, the ships crossed the now called the
7. In the spring of 1521, the ships crossed the now called the International Date Line.
7. In the spring of 1521, the ships crossed the now called the International Date Line. A. imaginary circle passing through the poles
7. In the spring of 1521, the ships crossed the now called the International Date Line. A. imaginary circle passing through the poles B. imaginary line parallel to the equator

The following passage refers to questions 8 through 14.

Marie Curie was one of the most accomplished scientists in history. Together with her husband, Pierre, she discovered radium, an element widely used for treating cancer, and studied uranium and other radioactive substances. Pierre and Marie's amicable collaboration later helped to unlock the secrets of the atom.

Marie was born in 1867 in Warsaw, Poland, where her father was a professor of physics. At an early age, she displayed a brilliant mind and a blithe personality. Her great exuberance for learning prompted her to continue with her studies after high school. She became disgruntled, however, when she learned that the university in Warsaw was closed to women. Determined to receive a higher education, she defiantly left Poland and in 1891 entered the Sorbonne, a French university, where she earned her master's degree and doctorate in physics.

Marie was fortunate to have studied at the Sorbonne with some of the greatest scientists of her day, one of whom was Pierre Curie. Marie and Pierre were married in 1895 and spent many productive years working together in the physics laboratory. A short time after they discovered radium, Pierre was killed by a horse-drawn wagon in 1906. Marie was stunned by this horrible misfortune and endured heartbreaking anguish. Despondently she recalled their close relationship and the joy that they had shared in scientific research. The fact that she had two young daughters to raise by herself greatly increased her distress.

Curie's feeling of desolation finally began to fade when she was asked to succeed her husband as a physics professor at the Sorbonne. She was the first woman to be given a professorship at the world-famous university. In 1911 she received the Nobel Prize in chemistry for isolating radium. Although Marie Curie eventually suffered a fatal illness from her long exposure to radium, she never became disillusioned about her work. Regardless of the consequences, she had dedicated herself to science and to revealing the mysteries of the physical world.

boration helped to unlock the secrets of the atom.
a personality.
could not attend the university in Warsaw, she felt

A. hopeless
B. annoyed
C. depressed
D. worried
E. None of the above
11. Marie by leaving Poland and traveling to France to enter the
Sorbonne.
A. challenged authority
B. showed intelligence
C. behaved
D. was distressed
E. Answer not available
12 she remembered their joy together.
A. Dejectedly
B. Worried
C. Tearfully
D. Happily
E. Irefully
13. Her began to fade when she returned to the Sorbonne to succeed
her husband.
A. misfortune
B. anger
C. wretchedness
D. disappointment
E. ambition
14. Even though she became fatally ill from working with radium, Marie Curie was
never

- A. troubled
- B. worried
- C. disappointed
- D. sorrowful
- E. disturbed

The following passage refers to questions 15 through 19.

Mount Vesuvius, a volcano located between the ancient Italian cities of Pompeii and Herculaneum, has received much attention because of its frequent and destructive eruptions. The most famous of these eruptions occurred in A.D. 79.

The volcano had been inactive for centuries. There was little warning of the coming eruption, although one account unearthed by archaeologists says that a hard rain and a strong wind had disturbed the celestial calm during the preceding night. Early the next morning, the volcano poured a huge river of molten rock down upon Herculaneum, completely burying the city and filling the harbor with coagulated lava.

Meanwhile, on the other side of the mountain, cinders, stone and ash rained down on Pompeii. Sparks from the burning ash ignited the combustible rooftops quickly. Large portions of the city were destroyed in the conflagration. Fire, however, was not the only cause of destruction. Poisonous sulfuric gases saturated the air. These heavy gases were not buoyant in the atmosphere and therefore sank toward the earth and suffocated people.

Over the years, excavations of Pompeii and Herculaneum have revealed a great deal about the behavior of the volcano. By analyzing data, much as a zoologist dissects an animal specimen, scientists have concluded that the eruption changed large portions of the area's geography. For instance, it turned the Sarno River from its course and raised the level of the beach along the Bay of Naples. Meteorologists studying these events have also concluded that Vesuvius caused a huge tidal wave that affected the world's climate.

In addition to making these investigations, archaeologists have been able to study the skeletons of victims by using distilled water to wash away the volcanic ash. By

strengthening the brittle bones with acrylic paint, scientists have been able to examine the skeletons and draw conclusions about the diet and habits of the residents. Finally, the excavations at both Pompeii and Herculaneum have yielded many examples of classical art, such as jewelry made of bronze, which is an alloy of copper and tin. The eruption of Mount Vesuvius and its tragic consequences have provided everyone with a wealth of data about the effects that volcanoes can have on the surrounding area. Today, volcanologists can locate and predict eruptions, saving lives and preventing the destruction of other cities and cultures.

15. Herculaneum and its harbor were buried under lava.				
A. liquid				
B. solid				
C. flowing				
D. gas				
E. Answer not available				
16. The poisonous gases were not in the air.				
A. able to float				
B. visible				
C. able to evaporate				
D. invisible				
E. able to condense				
17. Scientists analyzed data about Vesuvius in the same way that a zoologist				
a specimen.				
A. describes in detail				
B. studies by cutting apart				
C. photographs				
D. chart				
E. Answer not available				
18 have concluded that the volcanic eruption caused a tidal wave.				

- A. Scientists who study oceans
- B. Scientists who study atmospheric conditions
- C. Scientists who study ash
- D. Scientists who study animal behavior
- E. Answer not available in article

19. Scientists have used	water to wash away volcanic ash from the
skeletons of victims.	

- A. bottled
- B. volcanic
- C. purified
- D. sea
- E. fountain

The following passage refers to questions 20-24.

Conflict had existed between Spain and England since the 1570s. England wanted a share of the wealth that Spain had been taking from the lands it had claimed in the Americas.

Elizabeth I, Queen of England, encouraged her staunch admiral of the navy, Sir Francis Drake, to raid Spanish ships and towns. Though these raids were on a small scale, Drake achieved dramatic success, adding gold and silver to England's treasury and diminishing Spain's supremacy.

Religious differences also caused conflict between the two countries. Whereas Spain was Roman Catholic, most of England had become Protestant. King Philip II of Spain wanted to claim the throne and make England a Catholic country again. To satisfy his ambition and also to retaliate against England's theft of his gold and silver, King Philip began to build his fleet of warships, the Spanish Armada, in January 1586.

Philip intended his fleet to be indestructible. In addition to building new warships, he marshaled 130 sailing vessels of all types and recruited more than 19,000 robust soldiers and 8,000 sailors. Although some of his ships lacked guns and others lacked

ammunition, Philip was convinced that his Armada could withstand any battle with England.

The martial Armada set sail from Lisbon, Portugal, on May 9, 1588, but bad weather forced it back to port. The voyage resumed on July 22 after the weather became more stable.

The Spanish fleet met the smaller, faster, and more maneuverable English ships in battle off the coast of Plymouth, England, first on July 31 and again on August 2. The two battles left Spain vulnerable, having lost several ships and with its ammunition depleted. On August 7, while the Armada lay at anchor on the French side of the Strait of Dover, England sent eight burning ships into the midst of the Spanish fleet to set it on fire. Blocked on one side, the Spanish ships could only drift away, their crews in panic and disorder. Before the Armada could regroup, the English attacked again on August 8.

Although the Spaniards made a valiant effort to fight back, the fleet suffered extensive damage. During the eight hours of battle, the Armada drifted perilously close to the rocky coastline. At the moment when it seemed that the Spanish ships would be driven onto the English shore, the wind shifted, and the Armada drifted out into the North Sea. The Spaniards recognized the superiority of the English fleet and returned home, defeated.

20. Sir Francis Drake added wealth to the treasury and diminished Spain's	ì
·	
A unlimited newer	

- A. unlimited power
- B. unrestricted growth
- C. territory
- D. treaties
- E. Answer not available in article

21. King Philip recruited many _____ soldiers and sailors.

A. warlike B. strong C. accomplished D. timid E. inexperienced			
22. The Armada set sail on May 9, 1588.			
A. complete			
B. warlike			
C. independent			
D. isolated			
E. Answer not available			
23. The two battles left the Spanish fleet			
A. open to change			
B. triumphant			
C. open to attack			
D. defeated			
E. discouraged			
24. The Armada was on one side.			
A. closed off			
B. damaged			
C. alone			
D. circled			
E. Answer not available in this article			
The following passage refers to questions 25-29.			

The victory of the small Greek democracy of Athens over the mighty Persian Empire in 490 B.C. is one of the most famous events in history. Darius, king of the Persian Empire, was furious because Athens had interceded for the other Greek city-states in

revolt against Persian domination. In anger the king sent an enormous army to defeat Athens. He thought it would take drastic steps to pacify the rebellious part of the empire.

Persia was ruled by one man. In Athens, however, all citizens helped to rule. Ennobled by this participation, Athenians were prepared to die for their city-state. Perhaps this was the secret of the remarkable victory at Marathon, which freed them from Persian rule. On their way to Marathon, the Persians tried to fool some Greek city-states by claiming to have come in peace. The frightened citizens of Delos refused to believe this. Not wanting to abet the conquest of Greece, they fled from their city and did not return until the Persians had left. They were wise, for the Persians next conquered the city of Eritrea and captured its people.

Tiny Athens stood alone against Persia. The Athenian people went to their sanctuaries. There they prayed for deliverance. They asked their gods to expedite their victory. The Athenians refurbished their weapons and moved to the plain of Marathon, where their little band would meet the Persians. At the last moment, soldiers from Plataea reinforced the Athenian troops.

The Athenian army attacked, and Greek citizens fought bravely. The power of the mighty Persians was offset by the love that the Athenians had for their city. Athenians defeated the Persians in both archery and hand combat. Greek soldiers seized Persian ships and burned them, and the Persians fled in terror. Herodotus, a famous historian, reports that 6,400 Persians died, compared to only 192 Athenians.

25. Athens had	the other Greek city-states against the P	ersians.
A. refused help to		
B. intervened on behalf of		
C. wanted to fight		
D. given orders for all to figh	nt	
E. defeated		
26. Darius took drastic ste	eps to the rebellious Athenians.	_

A. weaken
B. destroy
C. calm
D. irritate
E. Answer not available
27. Their participation to the Athenians.
A. gave comfort
B. gave honor
C. gave strength
D. gave fear
E. gave hope
28. The people of Delos did not want to the conquest of Greece.
A. end
B. encourage
C. think about
D. daydream about
E. Answer not available
29. The Athenians were by some soldiers who arrived from Plataea.
A. welcomed
B. strengthened
C. held
D. captured
E. Answer not available

The following passage refers to questions 30-32.

The Trojan War is one of the most famous wars in history. It is well known for the 10-year duration, for the heroism of a number of legendary characters, and for the Trojan horse. What may not be familiar, however, is the story of how the war began.

According to Greek myth, the strife between the Trojans and the Greeks started at the wedding of Peleus, King of Thessaly, and Thetis, a sea nymph. All of the gods and goddesses had been invited to the wedding celebration in Troy except Eris, goddess of discord. She had been omitted from the guest list because her presence always embroiled mortals and immortals alike in conflict.

To take revenge on those who had slighted her, Eris decided to cause a skirmish. Into the middle of the banquet hall, she threw a golden apple marked "for the most beautiful." All of the goddesses began to haggle over who should possess it. The gods and goddesses reached a stalemate when the choice was narrowed to Hera, Athena, and Aphrodite. Someone was needed to settle the controversy by picking a winner. The job eventually fell to Paris, son of King Priam of Troy, who was said to be a good judge of beauty. Paris did not have an easy job. Each goddess, eager to win the golden apple, tried aggressively to bribe him.

"I'll grant you vast kingdoms to rule," promised Hera. "Vast kingdoms are nothing in comparison with my gift," contradicted Athena. "Choose me and I'll see that you win victory and fame in war." Aphrodite outdid her adversaries, however. She won the golden apple by offering Helen, daughter of Zeus and the most beautiful mortal in the land, to Paris. Paris, anxious to claim Helen, set off for Sparta in Greece.

Although Paris learned that Helen was married, he nevertheless accepted the hospitality of her husband, King Menelaus of Sparta. Therefore, Menelaus was outraged for a number of reasons when Paris departed, taking Helen and much of the king's wealth back to Troy. Menelaus collected his loyal forces and set sail for Troy to begin the war to reclaim Helen.

30.	Eris was	known	for	both	mortals	and	immort	als.

- A. scheming against
- B. creating conflict amongst
- C. feeling hostile toward
- D. ignoring
- E. comforting

31. Each goddess trie	ed to bribe Paris.
A. boldly	
B. effectively	
C. secretly	
D. carefully	
E. Answer not available	э
32. Athena	_ Hera, promising Paris victory and fame in war.
A. disregarded the stat	ement of
B. defeated	
C. agreed with	
D. restated the stateme	ent of
E. questioned the state	ement of

Refer to the following passage for questions 33-37.

One of the most intriguing stories of the Russian Revolution concerns the identity of Anastasia, the youngest daughter of Czar Nicholas II. During his reign over Russia, the czar had planned to revoke many of the harsh laws established by previous czars. Some workers and peasants, however, clamored for more rapid social reform. In 1918, a group of these people known as Bolsheviks overthrew the government. On July 17 or 18, they murdered the czar and what was thought to be his entire family.

Although witnesses vouched that all the members of the czar's family had been executed, there were rumors suggesting that Anastasia had survived. Over the years, a number of women claimed to be Grand Duchess Anastasia. Perhaps the most famous claimant was Anastasia Tschaikovsky, who was also known as Anna Anderson.

In 1920, 18 months after the czar's execution, this terrified young woman was rescued from drowning in a Berlin river. She spent two years in a hospital, where she attempted to reclaim her health and shattered mind. The doctors and nurses thought that she resembled Anastasia and questioned her about her background. She disclaimed any connection with the czar's family. Eight years later, however, she claimed that she was

Anastasia. She said that she had been rescued by two Russian soldiers after the czar and the rest of her family had been killed. Two brothers named Tschaikovsky had carried her into Romania. She had married one of the brothers, who had taken her to Berlin and left her there, penniless and without a vocation. Unable to invoke the aid of her mother's family in Germany, she had tried to drown herself.

During the next few years, scores of the czar's relatives, ex-servants, and acquaintances interviewed her. Many of these people said that her looks and mannerisms were evocative of the Anastasia that they had known. Her grandmother and other relatives denied that she was the real Anastasia, however.

Tired of being accused of fraud, Anastasia immigrated to the United States in 1928 and took the name Anna Anderson. She still wished to prove that she was Anastasia, though, and returned to Germany in 1933 to bring suit against her mother's family. There she declaimed to the court, asserting that she was indeed Anastasia and deserved her inheritance.

In 1957, the court decided that it could neither confirm nor deny Anastasia's identity. Although it will probably never be known whether this woman was the Grand Duchess Anastasia, her search to establish her identity has been the subject of numerous books, plays, and movies.

33. Some Russian pe	easants and workers for social reform.
A. longed	
B. cried out	
C. begged	
D. hoped	
E. thought much	
34. Witnesses	that all members of the czar's family had been executed.
A. gave assurance	
B. thought	
C. hoped	

D. convinced some	
E. Answer not available	
35. Tschaikovsky initially	any connection with the czar's family.
A. denied	
B. stopped	
C. noted	
D. justified	
E. Answer not available	
36. She was unable to	the aid of her relatives.
A. locate	
B. speak about	
C. call upon	
D. identify	
E. know	
37. In court she	_ maintaining that she was Anastasia and deserved her
inheritance.	
A. finally appeared	
B. spoke forcefully	
C. gave testimony	
D. gave evidence	
E. Answer not available	

Refer to the following passage for questions 38-39.

King Louis XVI and Queen Marie Antoinette ruled France from 1774 to 1789, a time when the country was fighting bankruptcy. The royal couple did not let France's insecure financial situation limit their immoderate spending, however. Even though the minister of finance repeatedly warned the king and queen against wasting money, they

continued to spend great fortunes on their personal pleasure. This lavish spending greatly enraged the people of France. They felt that the royal couple bought its luxurious lifestyle at the poor people's expense.

Marie Antoinette, the beautiful but exceedingly impractical queen, seemed uncaring about her subjects' misery. While French citizens begged for lower taxes, the queen embellished her palace with extravagant works of art. She also surrounded herself with artists, writers, and musicians, who encouraged the queen to spend money even more profusely.

While the queen's favorites glutted themselves on huge feasts at the royal table, many people in France were starving. The French government taxed the citizens outrageously. These high taxes paid for the entertainments the queen and her court so enjoyed. When the minister of finance tried to stop these royal spendthrifts, the queen replaced him. The intense hatred that the people felt for Louis XVI and Marie Antoinette kept building until it led to the French Revolution. During this time of struggle and violence (1789-1799), thousands of aristocrats, as well as the king and queen themselves, lost their lives at the guillotine. Perhaps if Louis XVI and Marie Antoinette had reined in their extravagant spending, the events that rocked France would not have occurred.

38. The people surrounding the queen encouraged her to spend money			
A. wisely			
B. abundantly			
C. carefully			
D. foolishly			
E. joyfully			
39. The minister of finance tried to curb these royal			

A. aristocrats

B. money wasters

C. enemies

D. individuals

E. spenders

Refer to the following passage for questions 40-45.

Many great inventions are initially greeted with ridicule and disbelief. The invention of the airplane was no exception. Although many people who heard about the first powered flight on December 17, 1903 were excited and impressed, others reacted with peals of laughter. The idea of flying an aircraft was repulsive to some people. Such people called Wilbur and Orville Wright, the inventors of the first flying machine, impulsive fools. Negative reactions, however, did not stop the Wrights. Impelled by their desire to succeed, they continued their experiments in aviation.

Orville and Wilbur Wright had always had a compelling interest in aeronautics and mechanics. As young boys they earned money by making and selling kites and mechanical toys. Later, they designed a newspaper-folding machine, built a printing press, and operated a bicycle-repair shop. In 1896, when they read about the death of Otto Lilienthal, the brothers' interest in flight grew into a compulsion.

Lilienthal, a pioneer in hang-gliding, had controlled his gliders by shifting his body in the desired direction. This idea was repellent to the Wright brothers, however, and they searched for more efficient methods to control the balance of airborne vehicles. In 1900 and 1901, the Wrights tested numerous gliders and developed control techniques. The brothers' inability to obtain enough lift power for the gliders almost led them to abandon their efforts.

After further study, the Wright brothers concluded that the published tables of air pressure on curved surfaces must be wrong. They set up a wind tunnel and began a series of experiments with model wings. Because of their efforts, the old tables were repealed in time and replaced by the first reliable figures for air pressure on curved surfaces. This work, in turn, made it possible for the brothers to design a machine that would fly. In 1903 the Wrights built their first airplane, which cost less than \$1,000. They even designed and built their own source of propulsion-a lightweight gasoline engine. When they started the engine on December 17, the airplane pulsated wildly before

taking off. The plane managed to stay aloft for 12 seconds, however, and it flew 120 feet.

By 1905, the Wrights had perfected the first airplane that could turn, circle, and remain airborne for half an hour at a time. Others had flown in balloons and hang gliders, but the Wright brothers were the first to build a full-size machine that could fly under its own power. As the contributors of one of the most outstanding engineering achievements in history, the Wright brothers are accurately called the fathers of aviation.

40. The idea of flying an aircraft was to some people.
A. boring
B. distasteful
C. exciting
D. needless
E. Answer not available
41. People thought that the Wright brothers had
A. acted without thinking
B. been negatively influenced
C. been too cautious
D. been mistaken
E. acted in a negative way
42. The Wrights' interest in flight grew into a
A. financial empire
B. plan
C. need to act
D. foolish thought
E. Answer not available
43. Lilienthal's idea about controlling airborne vehicles was the Wrights.

A. proven wrong by	
B. opposite to the ideas of	
C. disliked by	
D. accepted by	
E. improved by	
44. The old tables were	and replaced by the first reliable figures for air
pressure on curved surfaces.	
A. destroyed	
B. invalidated	
C. multiplied	
D. approved	
E. not used	
45. The Wrights designed and built	their own source of
A. force for moving forward	
B. force for turning around	
C. turning	
D. force for going backward	
E. None of the above	

Answers and Explanations

- **1. B:** "Terrestrial" means land. No choice here offers a synonym for "marine," e.g. nautical/naval/water/seagoing, and no other choices match either marine or terrestrial.
- **2. A:** "Quagmire" means literally a bog or marsh, and figuratively an involved situation difficult to escape; entanglement is a synonym, more specifically similar than the other choices.
- **3. A:** Longitudes are imaginary geographical lines running north and south. Latitudes run east and west. The other choices do not equal either latitude or longitude in direction.
- **4. C:** Topography means the physical features of a land mass. It does not mean coastline (A), mountain range (B), or islands (D).
- **5. C:** A peninsula is a piece of land connected to the mainland by an isthmus and projecting into the ocean such that it is surrounded on three sides by water. A peninsula is not a coast (A); it is not found inland (B); and it is not a border (D).
- **6. B:** The passage was found near 50 degrees S latitude. Latitudes are measured horizontally, in relation to the equator or central imaginary line, equidistant between the North and South Poles. Longitudes are measured vertically. Greenwich (A), the location of zero degrees longitude, adopted as the global standard, is both incorrect and never named in the passage. Spain (C), Portugal (D), and Madrid (E) in Spain are also incorrect.
- **7. A:** Meridians are imaginary geographical circles intersecting the poles. Imaginary lines parallel to the equator (B) are latitudes. The International Date Line is a specific meridian, not an area (C). It is not a land mass (D) as it crosses both water and land.

- **8. A:** "Amicable" means friendly. It does not mean competitive (B), i.e. oppositional, ambitious, or aggressive; courteous (C), i.e. polite; industrious (D), i.e. hard-working; or chemistry (E): their collaboration was in physics, but moreover, the passage specifically describes their collaboration as "amicable."
- **9. B:** "Blithe" means light-hearted. It does not mean strong (A), humorous (B) or funny; strange (D), or envious (E).
- **10. B:** "Disgruntled" means annoyed. It does not mean hopeless (A), depressed (C), or worried (D).
- **11. A:** Marie challenged authority by going to study at the Sorbonne, because Warsaw's university did not admit women. The passage indicates this challenge by describing her "defiantly" leaving Poland for France; i.e., she was defying authority. The passage does not indicate she showed intelligence (B), "behaved" (C), or was distressed (D) or upset by her move.
- **12. A:** A synonym for "despondently" is "dejectedly," meaning sadly, with despair or depression. The passage indicates this by describing Curie's emotional state as one of "heartbreaking anguish" over her husband's sudden accidental death. She is not described in this passage as worried (B) by her memories, or recalling them tearfully (C), happily (D), or irefully (E), i.e. angrily.
- **13. C:** The closest synonym for the "feeling of desolation" (despair) described in the passage is wretchedness. Misfortune (A) or ill fate/luck is not as close. Anger (B) is a separate emotion from desolation. Disappointment (D) is also different from desolation, meaning feeling let-down rather than hopeless. Ambition (E) is drive to succeed or accomplish things. It was not Curie's ambition that faded upon returning to the Sorbonne but her depression.
- **14. C:** "Disillusioned" means disappointed. It does not mean troubled (A), i.e. concerned or disturbed; worried (B) or anxious; sorrowful (D) or sad; or disturbed (E).

- **15. B:** "Coagulated" means solidified. Liquid (A) is an opposite of solid. Flowing (C) assumes a liquid, not solid, state. Gas (D) is another opposite of solid. (Three states of matter, like volcanic material, are liquid, solid, and gaseous.)
- **16. A:** "Buoyant" means able to float. The passage indicates this by indicating that the gases therefore, sank toward earth and suffocated people. Buoyant does not mean visible (B) or possible to see. Able to float/buoyant does not mean able to evaporate (C). Evaporation means turning to vapor, which only liquids can do. Gases are already vapors. Buoyant does not mean invisible (D) or unseen. Able to float does not mean able to condense (E), i.e. turn from vapor to liquid.
- **17. B:** "Dissect" means to cut apart for study. It does not mean to describe in detail (A), to photograph (C), or to chart (D) a specimen.
- **18. B:** Meteorologists are scientists who study atmospheric conditions, particularly weather. Scientists who study oceans (A) are oceanographers, i.e. marine scientists. Scientists who study ash (C) do not exist as members of a separate discipline. Climate scientists and many others concerned with its effects study volcanic ash. Scientists who study animal behavior (D) are ethologists or animal behaviorists and do not study ash.
- **19. C:** Distilled water is purified water. Distilled water is not equivalent to bottled (A), volcanic (B), sea (D), or fountain (E) water.
- **20. A:** "Supremacy" means unlimited power, not unrestricted growth (B). The passage states that Drake diminished Spain's supremacy, but does not specifically mention diminishing its territory (C). Drake's raids enriched England and reduced Spain's power; no mention is made of eliminating any treaties (D).
- **21. B:** "Robust" means strong. It does not mean warlike (A), accomplished (C) or competent, timid (D) or fearful, or inexperienced (E).
- **22. B:** "Martial" means warlike or war-related. It does not mean complete (A), independent (C), or isolated (D).

- **23. C:** "Vulnerable" means open to attack or susceptible to harm. It does not mean open to change (A) or receptive, triumphant (B) or victorious, defeated (D) or beaten-they were vulnerable to attack first and then consequently were defeated-or discouraged (E), i.e. disheartened or dispirited.
- **24. A:** The passage indicates the Armada was "blocked" on one side, i.e. closed off rather than damaged (B) (it was damaged extensively, not on one side); alone (C) or circled (D), i.e. surrounded, neither of which can be done on only one side.
- **25. B:** "Interceded for" means intervened on behalf of, not refused help to (A), wanted to fight (C), given orders for all to fight (D), or defeated (E).
- **26.** C: "Pacify" means to calm or make peaceful. It does not mean to make weaker (A), to destroy (B), or to irritate (D), i.e. annoy or provoke.
- **27. B:** "Ennobled" means gave honor to or made noble. It does not mean gave comfort (A) or solace, gave strength (C), i.e. fortified or reinforced, gave fear (D) or frightened, or gave hope (E) or encouraged.
- **28. B:** To "abet" means to enable, support, or encourage, usually in crime or doing something wrong. It does not mean to end (A), think about (C), or daydream about (D) something.
- 29. B: "Reinforced" means strengthened, not welcomed (A), held (C), or captured (D).
- **30. B:** The passage states that the presence of Eris, goddess of discord, "always embroiled mortals and immortals alike in conflict." Embroiling them in conflict is creating conflict amongst them. It does not mean scheming against (A) them, feeling hostile toward (C) them, ignoring (D) them, or comforting (E) them.
- **31. A:** "Aggressively" means boldly. It does not mean effectively (B) or successfully, secretly (C), or carefully (D).
- **32. A:** "Contradicted" means Athena disregarded Hera's statement and disputed or countered it. It does not mean she defeated (B) her statement, agreed with (C) it, restated (D) it, or questioned (E) it.

- **33. B:** To "clamor for" means to cry out for (something). It does not mean to long for (A) it, beg (C) for it, hope (D) for it, or think much (E) "for," of, or about it.
- **34. A:** To "vouch" means to give assurance. It does not mean to think (B), hope (C), or convince some (D).
- **35. A:** "Disclaimed" means denied, i.e. refused or declared untrue. It does not mean stopped (B), noted (C), or justified (D), i.e. substantiated or confirmed, the opposite of denied.
- **36. C:** She was unable to invoke, i.e. to call upon, the aid of relatives. To invoke does not mean to locate (A) or find; to speak about (B) or discuss; to identify (D), i.e. recognize; or to know (E).
- **37. B:** "Declaimed" means spoke forcefully. It does not mean finally appeared (A). Though she did also give testimony (C) in court, "declaimed" does not mean to testify; it describes the way she spoke while doing so. "Declaimed" also does not mean she gave evidence (D).
- **38. B:** "Profusely" means abundantly, copiously, or excessively. It does not mean wisely (A) or carefully (B), which are both opposite in meaning to the excessive connotation of profuse spending. Foolishly (D) can be associated with spending profusely, but does not have the same meaning. Profusely does not mean joyfully (E), i.e. gleefully or happily.
- **39. B:** "Spendthrifts" means money wasters. It does not mean aristocrats (A), i.e. nobles or privileged people. It does not mean enemies (C) or adversaries. It does not mean individuals (D) or persons. "Spenders" (E) denotes people who spend, but does not convey the sense of wasteful spending or squandering in the same way that "spendthrifts" does.
- **40. B:** "Repulsive" means distasteful. It does not mean boring (A), exciting (C), or needless (D).
- **41. A:** "Impulsive" means acting on impulse, i.e. acting without thinking. People thinking the Wrights "impulsive fools" does not mean they thought the Wrights had been

negatively influenced (B), too cautious (C), mistaken (D), or had acted in a negative way (E).

- **42. C:** A "compulsion" is a need or an urge to act. It is not a financial empire (A), a plan (B), or a foolish thought (D).
- **43. C:** "Repellent" means offensive or hateful; in other words, Lilienthal's idea was disliked by the Wrights. It does not mean his idea was opposite to the idea of (B) the Wrights. It means the opposite of its being accepted by (D) the Wrights. They found his idea unpleasant rather than improving (E) on it.
- **44. B:** "Repealed" means invalidated, i.e. disproven or overturned. It does not mean destroyed (A); multiplied (C), i.e. increased/approved (D), an antonym; or unused (E).
- **45. A:** "Propulsion" is force for propelling or moving forward. It does not mean force for turning around (B), turning (C) (oscillation perhaps), or force for going backward (D) (like repulsion).

MATH COMPUTATION

Part 1

TIME: 15 Minutes

This is a practice test - the results are not valid for certificate requirements.

A calculator may not be used for this test.

MATH COMPUTATION

1.

E. None of these

6.

$$600 \times 245 = \begin{array}{c} A. & 144,300 \\ B. & 147,000 \\ C. & 14,700 \\ D. & 174,000 \\ E. & None of these \end{array}$$

2.

E. None of these

7. A. 80,160 $40 \times 24 =$ B. 960 C. 96 D. 8160 E. None of these

3.

E. None of these

8.

4.

$$672 \div 6 = \begin{array}{c} A. & 110 \\ B. & 111 R 4 \\ C. & 113 \\ D. & 112 R 2 \\ E. & None of these \end{array}$$

9.

$$4500 \div 3 = \begin{array}{c} A. & 1500 \text{ R 1} \\ B. & 150 \\ C. & 15 \\ D. & 1500 \\ E. & \text{None of these} \end{array}$$

5.

10.

$$3\frac{3}{9} - 2\frac{1}{9} = A. \frac{2}{9}$$
B. $1\frac{2}{9}$
C. 1
D. $1\frac{2}{9}$

E. None of these

11.

E. None of these

16.

12.

$$54-0.024 = \begin{matrix} A. & 30 \\ B. & 0.03 \\ C. & 53.976 \\ D. & 53.076 \\ E. & None of these \end{matrix}$$

17.

13.

18.

$$3-1=$$

A. 4
B. 2
C. 3
D. -4
E. None of these

14.

19.

15.

$$\frac{2}{9} \div 2 =$$
A. 18
B. $\frac{4}{9}$
C. $2\frac{1}{4}$
D. $4\frac{1}{2}$
E. None of these

20.

$$-54 \div -2 =$$
A. 26
B. 27
C. -26
D. -27
E. None of these

21.

22.

$$12 + -1 + -1 =$$
 $\begin{array}{ccc}
A. & -10 \\
B. & -14 \\
C. & 10
\end{array}$

D. 14

E. None of these

24.

D. 150

E. None of these

23.

$$\frac{1}{2} \div \frac{4}{5} = A. \quad 2\frac{1}{2}$$

$$B. \quad \frac{2}{5}$$

$$C. \quad \frac{5}{8}$$

$$D. \quad 1\frac{3}{5}$$

$$E. \quad Nor$$

E. None of these

25.

$$-2-5=$$
A. -3
B. 3
C. 7
D. -7

E. None of these

MATH APPLICATION

Part 2

TIME: 50 Minutes

This is a practice test - the results are not valid for certificate requirements.

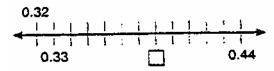
A calculator may not be used for this test.

MATH APPLICATION

- 1. Which of these numbers is three hundred forty thousand, seven hundred five?
 - A. 340,705
 - B. 3.040.705
 - C. 34,750
 - D. 340,750
- **2.** What number goes in the box to make the number sentence true?

$$4 \times \times 5 = 100$$

- A. 2
- B. 5
- C. 6
- D. 8
- **3.** What decimal goes in the box on the number line?



- A. 0.38
- B. 0.39
- C. 0.40
- D. 0.41

- 4. About 2 out of every 3 people Son Lee speaks to agrees to sign the petition. If she speaks to 150 people, about how many signatures will she get?
 - A. 50
 - B. 75
 - C. 100
 - D. 120
- 5. This table shows "Input" numbers that have been changed to "Output" numbers by applying a specific rule. What number is missing from the table?

Rule: Multiply by 2, then subtract 1.

Input	Output
3	5
12	23
15	29
8	?

- A. 10
- B. 15
- C. 16
- D. 17
- **6.** Which of these is another way to write 70,000,000 + 14,000,000 + 30?
 - F. 71,400,003
 - B. 84,000,030
 - C. 74,000,300
 - D. 84000.300

7. There are 26 tiles in a box and Mike needs 96 tiles. What does *n* represent in the number sentence below?

$$4 \times 26 = n$$

- A. the number of boxes Mike needs
- B. the number of tiles in $\frac{1}{4}$ box
- C. the number of tiles in 4 boxes
- D. the cost of 26 tiles
- **8.** Which of the following lists the fractions from greatest to least?

A.
$$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$$

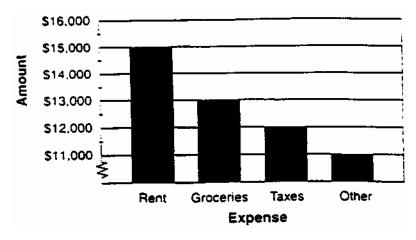
$$B. \quad \frac{1}{5}, \frac{1}{4}, \frac{1}{3}, \frac{1}{2}$$

C.
$$\frac{1}{4}, \frac{1}{3}, \frac{1}{2}, \frac{1}{5}$$

D.
$$\frac{1}{3}, \frac{1}{2}, \frac{1}{5}, \frac{1}{4}$$

- 9. During an average game, $\frac{1}{3}$ of the snack bar sales are soft drinks, $\frac{1}{4}$ are potato chips, $\frac{1}{6}$ are hot dogs, and $\frac{1}{12}$ are candy bars. Which sells the most at the snack bar?
 - A. soft drinks
 - B. potato chips
 - C. hot dogs
 - D. candy bars

This graph show how the Yang family spends money. Study the graph.



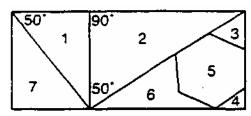
- **10.** Which of these is the greatest expense for the Yang family?
 - A. Rent
 - B. Taxes
 - C. Groceries
 - D. Restaurants
- 11. Which of these statements is true?
 - A. The family spends more on taxes than it does on clothing.
 - B. The family spends less on taxes than it does on vacations.
 - C. The family spends twice as much on rent as it does on taxes.
 - D. The family spends as much on rent as it does on taxes and groceries combined.



- 12. The price of the stereo system is 25% off the regular price. Which of these is the best estimate of the regular price of the stereo system?
 - A. \$450
 - B. \$925
 - C. \$600
- **13.** About how much has the camera been marked down?
 - A. 700%
 - B. 200%
 - C. 70%
 - D. 50%

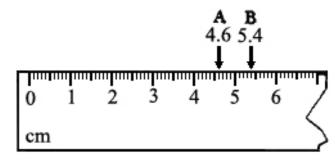
- **14.** To get financing at this store, you must pay 15% interest. Which fraction is equal to 15 percent?
 - A. $\frac{15}{10}$
 - B. $\frac{15}{2400}$
 - C. $\frac{10}{15}$
 - D. $\frac{15}{100}$
- **15.** Sales tax in this area is 7%. About what is the cost of the microwave including sales tax?
 - A. \$92.00
 - B. \$99.70
 - C. \$106.00
 - D. \$169.00
- **16.** If you use the store's financing to buy the computer, what is the smallest down payment you can make?
 - A. \$10.00
 - B. \$24.99
 - C. \$200.00
 - D. \$249.90

The diagram below shows plans for a stainedglass window. Study the diagram.



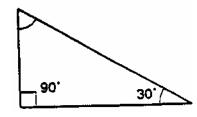
- **17.** Which pieces of this window are congruent?
 - A. pieces 1 and 2
 - B. pieces 2 and 3
 - C. pieces 4 and 6
 - D. pieces 7 and 1
- **18.** What kind of shape is piece 5?
 - A. hexagon
 - B. pentagon
 - C. octagon
 - D. quadrilateral

Use the 6-centimeter ruler pictured below to answer Numbers 21 and 22



- **21.** How many millimeters is point A from the point marked 0?
 - A. 0.6
 - B. 4.6
 - C. 6
 - D. 46

- **19.** Randy and Dennis drove for 5 hours at a speed of 62 miles per hour. How many miles did they travel?
 - A. 246
 - B. 310
 - C. 430
 - D. 640
- **20.** In the triangle below, the measures of two angles are given. What is the measure of the third angle?



- A. 30°
- B. 45 °
- C. 60°
- D. 90°
- **22.** How many millimeters is point A from the point marked 0?

(1 meter = 100 centimeters)

- A. $\frac{6}{100}$
- B. $\frac{6}{10}$
- C. $\frac{1}{6}$
- D. $\frac{1}{60}$

RUB-A-DUB LAUNDRY

Quality, Excellence, and Service

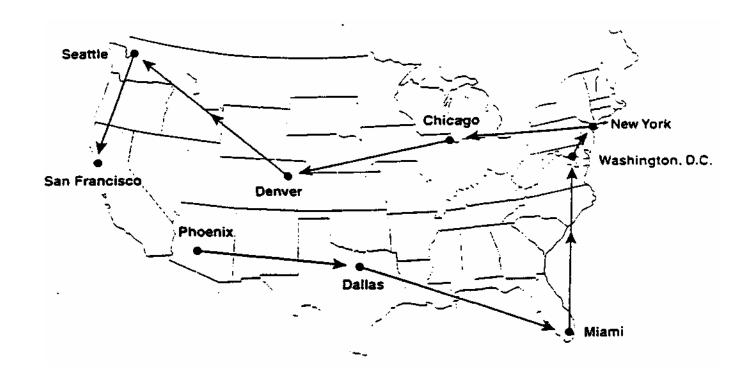
RATES

<u>Garments</u>	Wash and Dry	<u>lron</u>	<u>Dry Clean</u>
1-9	\$0.10 each	Add \$0.50 each	\$2.00 each
10–24	\$0.10 each	Add \$0.40 each	\$1.75 each
25-49	S0.10 each	Add S0.30 each	\$1.50 each
50 - 99	\$0.05 each	Add \$0.20 each	\$1.25 each
100 or more	S0.05 each	Add \$0.10 each	\$1.00 each

\$1.00 per repair for mending. \$2.00 charge for all lost claim tickets. Garments will not be held for more than 1 month.

- **23.** David brought in twelve shirts to be washed and dried. How much will he be charged?
 - A 10¢
 - B. \$1.20
 - C. \$11.20
 - D. \$12.00
- **24.** If David has his twelve shirts ironed as well as washed and dried, how much more will he pay?
 - A. \$4.00
 - B. \$4.80
 - C. \$5.80
 - D. \$6.00
- **25.** Elona had three dresses dry-cleaned and ten shirts washed, dried, and ironed. How much will she be charged before tax?
 - A. \$6.00
 - B. \$9.00
 - C. \$11.00
 - D. \$12.60

- 26. Frank has five pairs of pants to be dry-cleaned. His daughter has seven dresses to be dry-cleaned. How much will they save if they bring everything in together?
 - A. \$3.00
 - B. \$6.00
 - C. \$21.00
 - D. \$24.00
- 27. Raul's cleaning bill came to \$18.46. He paid with a \$20.00 bill. How much change should he receive?
 - A. \$1.44
 - B. \$1.54
 - C. \$2.44
 - D. \$2.54



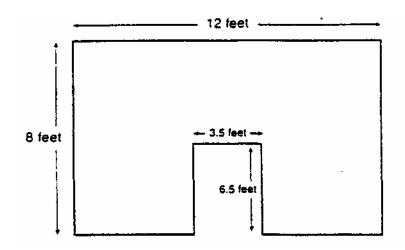
MILEAGE CHART

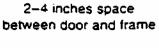
Phoenix to Dallas	850 miles
Dallas to Miami	1050 miles
Miami to Washington D.C.	975 miles
Washington. D.C. to New York City	200 miles
New York City to Chicago	750 miles
Chicago to Denver	800 miles
Denver to Seattle	1050 miles
Seattle to San Francisco	700 miles

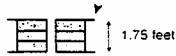
- **28.** Where does Jordan plan to start his trip?
 - A. Phoenix
 - B. San Francisco
 - C. New York
 - D. Miami
- **29.** How much farther is it from Denver to Seattle than from Chicago to Denver?
 - A. 200 miles
 - B. 250 miles
 - C. 300 miles
 - D. 350 miles
- **30.** What would be the shortest part of Jordan's trip?
 - A. Washington D.C. to New York City
 - B. Seattle to San Francisco
 - C. Miami to Washington D.C.
 - D. Chicago to Denver

- 31. Jordan wishes to spend three days in each of the nine cities listed. What else must he know about his trip to figure out how fast he must travel from city to city?
 - A. the cost per gallon of gas
 - B. the cost of airline tickets
 - C. the temperature in each city
 - D. how many days altogether he has for the trip
- **32.** This map would be most useful to show Jordan
 - A. what there is to do in each city.
 - B. how much the trip would cost.
 - C. the best driving routes between cities.
 - D. the order in which he will visit the cities.
- **33.** Which of these is the best estimate of the average distance between cities on this trip?
 - A. 700 miles
 - B. 800 miles
 - C. 900 miles
 - D. 1000 miles

The diagram below shows the doorway in Lydia's breakfast nook, and the swinging doors she is planning to install in the doorway. Study the diagram.





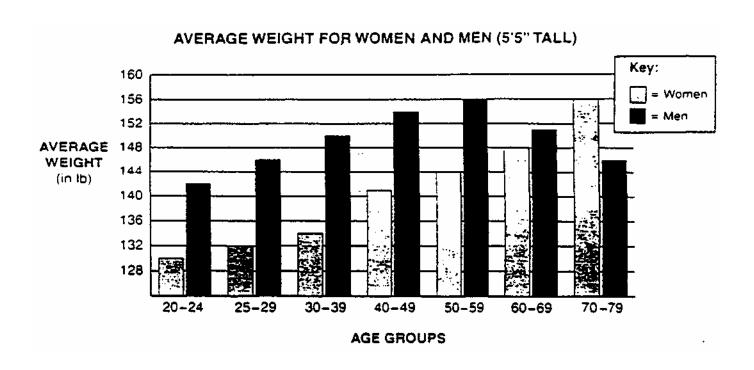


- **34.** About how wide should each of the swinging doors be? (Do not include the width of the hinges.)
 - A. about 1 foot
 - B. at least 3 feet
 - C. less than 1 3/4 feet
 - D. about 2 feet 4 inches

- **36.** Lydia's kitchen has about 410 square feet of wall area. One roll of wallpaper covers about 23 square feet. How many rolls of wallpaper will Lydia need to paper the walls of the kitchen?
 - A. 10
 - B. 18
 - C. 20
 - D. 23
- 35. The cost of the doors is \$49.50 each, and installation of both doors is another \$37.50. How much should Lydia have in her checking account, to the nearest ten dollars, to pay the bill in full?
 - A. \$90
 - B. \$140
 - C. \$150
 - D. \$200

- 37. In remodeling her breakfast nook.
 Lydia spends \$289.00 for a new table,
 \$154.00 for the doors, \$125.50 for
 wallpaper, and \$215.00 for curtains.
 Which is the best estimate of howmuch she spent in all?
 - A. \$550.00
 - B. \$600.00
 - C. \$900.00
 - D. \$775.00

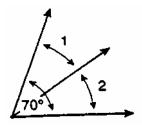
This graph shows the average weights of men and women at different times in their lives. Study the graph.



- **38.** For men in this graph, what is the range of average weight?
 - A. from 130 to 156 lb
 - B. from 142 to 156 lb
 - C. from 142 to 146 lb
 - D. from 156 co 146 lb
- **39.** The average weight of a 5' 5"-tall woman in her forties is about
 - A. 135 lb
 - B. 141 lb
 - C. 145 lb
 - D. 147 lb

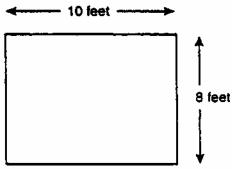
- **40.** Among 5'5" men, the average weight of those aged 25 to 29 years matches that of men aged
 - A. 30-39 years
 - B. 50-59 years
 - C. 60-69 years
 - D. 70-79 years

41. The ray shown divides the large angle in half. What is the measure of angle 2?



- A. 30°
- B. 35°
- C. 40 ° D. 45 °

This diagram shows the dimensions of Eric's garden. Use the diagram to do Numbers 2 through 5.



- **42.** What is the area of the garden?
 - A. 18 feet
 - B. 36 feet
 - 40 square feet C.
 - 80 square feet D.
- **43.** Eric wants to put a fence around the garden. How much fencing will he need?
 - 18 feet A.
 - B. 36 feet
 - C. 40 feet
 - D. 80 feet

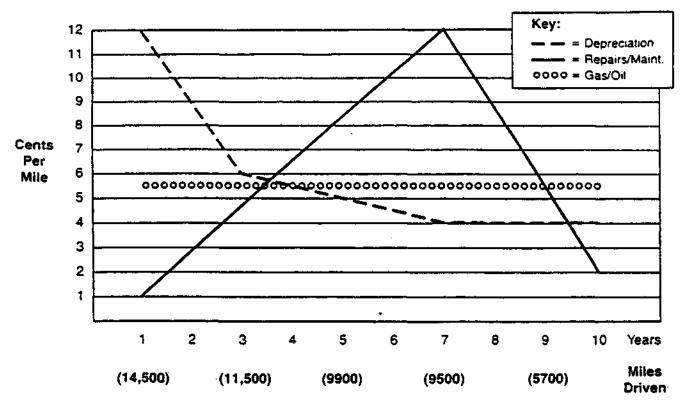
- The fencing costs Eric \$60.40. Which 44. of these is \$60.40?
 - 3 twenty-dollar bills, 3 dimes, and 1 nickel
 - B. 3 twenty-dollar bills, 1 quarter, and one nickel
 - 3 twenty-dollar bills, 1 quarter, C. and 1 dime
 - 3 twenty-dollar bills, 1 quarter, 1 D. dime, and 1 nickel
- **45.** Eric buys 40 ounces of fertilizer for the garden. How many pounds is that?

 - 2 B.

 - D. 3

This graph shows how much it costs to operate an average car. Each line represents a separate expense. Study the graph.

COST OF OPERATING A CAR IN CENTS PER MILE

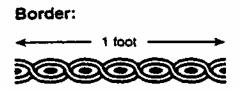


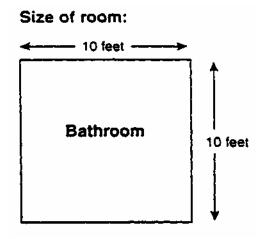
Source: U.S. Federal Highway Administration

- **46.** In which year is there the greatest difference between the costs of depredation and repairs?
 - A. the first year
 - B. the fourth year
 - C. the seventh year
 - D. the tenth year
- **47.** In which years is the expense of repairs and maintenance more than that of gas and oil?
 - A. year 1 through year 4
 - B. year 4 through year 10
 - C. year 4 through year 9
 - D. year 9 through year 10

- **48.** In most years the cost of gas and oil is the median among the three costs graphed. In which of the following years is it <u>not</u> the median?
 - A. year 1
 - B. year 5
 - C. year 8
 - D. year 10
- **49.** In which year does depreciation account for the smallest share of the cost of operating a car?
 - A. year 1
 - B. year 3
 - C. year 7
 - D. year 10

Amanda is putting a border on her bathroom walls. A section of the border is shown below, along with a diagram of Amanda's bathroom. Study the border and the diagram.





- **50.** Amanda wants to put the border halfway up her walls, which are 9 feet high. To figure out where to put the border, she uses the equation $9 \div 2 = x$. What does the x in the equation represent?
 - A. how far up from the floor the top of the border should be placed
 - B. how much space there will be between the border and the floor
 - C. where the halfway point is between the ceiling and the floor
 - D. how wide the border is

ANSWER KEY

24. B

25. B

49. C

50. C

Part 1 – Math Computation		Part 2 – Math Applica	ation	
1. B	1.	A	26.	A
2. C	2.	В	27.	В
3. B	3.	В	28.	A
4. E	4.	C	29.	В
5. E	5.	В	30.	A
6. B	6.	В	31.	D
7. B	7.	C	32.	D
8. D	8.	A	33.	В
9. D	9.	A	34.	C
10. B	10.	A	35.	В
11. D	11.	A	36.	В
12. C	12.	В	37.	D
13. D	13.	D	38.	В
14. B	14.	D	39.	В
15. E	15.	C	40.	D
16. D	16.	D	41.	В
17. D	17.	D	42.	D
18. A	18.	A	43.	В
19. B	19.	В	44.	D
20. B	20.	C	45.	C
21. A	21.	D	46.	A
22. C	22.	A	47.	C
23. C	23.	В	48.	D

24. B

25. C