

**To the Student:**

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

WHAT TO BRING

- No. 2 pencil
- Notebook paper

ABOUT THE EXAM

The examination is based on the Essential Knowledge and Skills for sixth grade math. Since questions are not taken from any one source, you can prepare by reviewing any of the Texas state-adopted textbooks for sixth grade. If you don't have a textbook or any other study materials available locally, you may contact the Outreach & Distance Education Bookstore. The bookstore carries the MacMillan/McGraw-Hill textbook, *Mathematics in Action*, which is used with our Math 6A Distance Education course.

All of the questions on this exam are multiple choice; however, you *will* still need to show your work so you will have a chance to receive partial credit for correct work, even if you miss the final answer. Below is a list of topics you will need to review before taking the exam. You will also find some sample questions of material that will be on the exam. It is a good idea to work through the questions by yourself first. When you finish the sample questions, you can check your work with the answer key at the end of this review. On the answer key, you will find the answer and some steps showing how to work each problem.

Topics covered on this exam:

- ratios and proportions
- ratios and percents using models, fractions, and decimals
- geometry vocabulary
- polygons, 3-D figures and their properties
- area and volume
- conversion of measures within the same measurement system (customary/metric)
- coordinate grids
- probability and statistics
- problem solving techniques (collecting, organizing, and displaying data)

The TEKS that are covered are:

- 6.3 A-C
- 6.4 B
- 6.5 A
- 6.6 A, B
- 6.7 A
- 6.8 A-D
- 6.9 A, B
- 6.10 A-D
- 6.11 A-D
- 6.12 A, B
- 6.13 A, B

The majority of the problems on the exam will be in problem-solving format. Therefore, it is very important that you are thoroughly familiar with TEKS 6.11. A problem-solving plan used in the Math 6B course is called the **UPSE** plan. Following these steps in each problem will help you correctly identify the problem and solve it:

Understand: Read the problem. Reread the problem if necessary. Underline the question. Is there any extraneous information—if so, cross it out. What is the important information? Annotate the problem.

Plan a solution: What can you do to solve the problem? Can you make a sketch, make a chart, work backwards, or solve a simpler problem?

Solve the problem: Try the plan. First estimate the answer, then solve.

Evaluate the answer: Reread the question. Does your answer make sense? Is it close to the estimate?

For more information about CBE policies, visit <http://www.ode.ttu.edu/takeacbe/> or see your course Policies & Forms Guide.

A note on the sample exam: Although almost half of the sample examination covers geometry terms, this is simply to make you aware of all the terms that may be tested; it does *not* mean that half of the CBE will be on geometry terms!

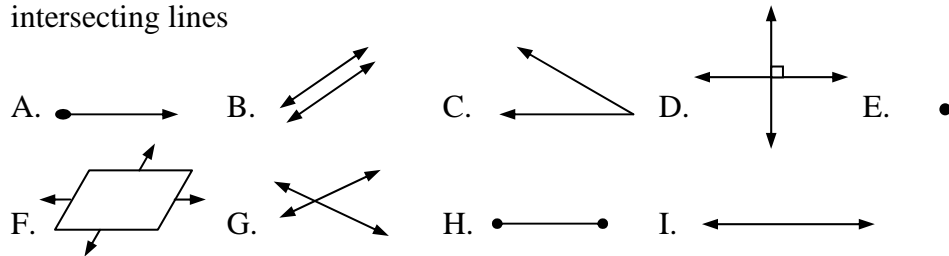
Take your time, show your work and good luck on the examination!

Sample Examination

Work the following problems on your own paper. When you are done, check your answers using the key located at the end of this exam.

Match each word with the appropriate sketch:

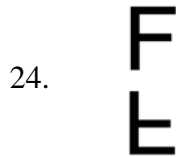
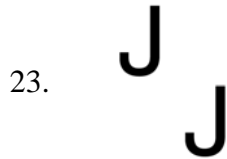
1. point
2. line
3. plane
4. line segment
5. perpendicular lines
6. parallel lines
7. ray
8. angle
9. intersecting lines



Define each of the following terms:

10. right triangle
11. obtuse triangle
12. acute triangle
13. equilateral triangle
14. scalene triangle
15. isosceles triangle
16. polygon
17. quadrilateral
18. trapezoid
19. parallelogram
20. rhombus
21. rectangle
22. square

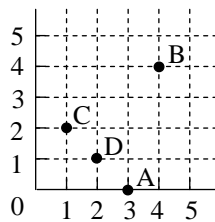
23-25. Label each diagram with the appropriate transformation (reflection, translation, rotation).



26. Which of these letters have a line of symmetry? Draw the line of symmetry.

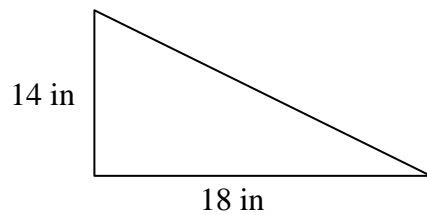
F H J M S

27. Name the ordered pairs for each of the points listed on the following coordinate grid.

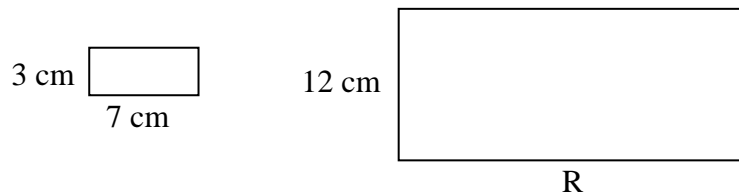


28. The apple orchard is located 2.8 kilometers away. How many meters is that?
29. John was told to drink 64 ounces of clear liquid a day. How many cups of liquid should he drink?
30. Nick ran a marathon in 4 hours and 43 minutes. Susie ran the marathon in 5 hours 17 minutes. How much faster was Nick than Susie?
31. What is the approximate height of a classroom door?
- A. 2 centimeters
 - B. 2 decimeters
 - C. 2 meters
 - D. 2 kilometers
32. An aquarium measures 12 inches wide, 20 inches long, and 14 inches high. What is the volume of the aquarium?

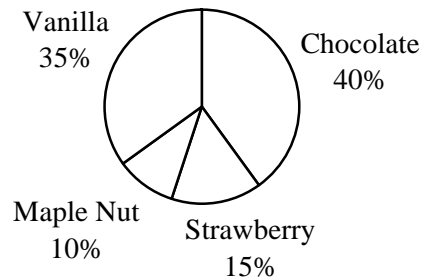
33. This figure is a sketch of a shelf to be mounted in a corner of a cabinet. What is the area of the shelf?



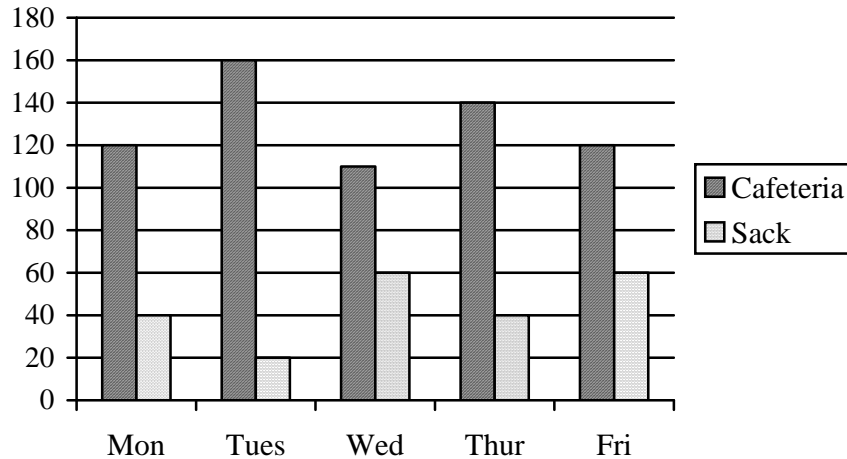
34. How many faces are on a square pyramid?
35. The sixth graders were interviewed to find out whether they were right-handed or left-handed. Thirty students were interviewed; 8 were left handed and 22 were right handed. Based on this information, what would be a good estimate of the number of students out of 300 in the whole school, who would be left-handed?
36. Bradley got 6 out of 8 questions on the test correct. Write this as a fraction, a decimal, *and* a percent.
37. Here are two similar figures. What is the length of side R?



38. The graph shows what percent of 200 students liked each flavor of ice cream the best? How many students liked strawberry *or* maple nut the best?



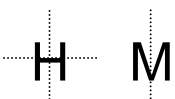
39. The graph below shows the number of lunches purchased in the cafeteria and the number of lunches brought from home last week. How many more students bought lunch in the cafeteria than brought their lunch on Wednesday?



40. Mrs. Lowe used 32 pounds of sugar to make pies. She sold 12, 16, 8, 12, and 22 pies on the five days of the food fair. What was the mean, median, range, and mode for the number of pies she sold during those five days?
41. A magician has 2 robes, 4 hats, and 5 masks. How many different combinations of one robe, one hat, and one mask are possible?
42. The four members of the Martinez family will have their group picture taken. How many seating arrangements could there be?
43. The diameter of a wagon wheel is 18 inches. How far will the wheel roll on each revolution of the wheel? ($\pi = 3$)
44. Natalie did between 20 and 32 sit-ups each night for four nights. What is a reasonable total for the number of sit-ups Natalie did in all?
45. Trisha was paid \$11 for tutoring, \$3 for reading to her niece, and \$7 for driving her grandmother to the doctor. If she tutored three times and made two trips to the doctor with her grandmother, what number sentence could be used to find how much she earned?
46. Andrew received \$15 for his birthday. He is going to buy a 26-inch bicycle, making equal monthly payments of \$23.40. What else does Andrew need to know to find out the price of the bicycle?

SOLUTIONS TO SAMPLE PROBLEMS:

1. E
2. I
3. F
4. H
5. D
6. B
7. A
8. C
9. G
10. angle whose measure is 90 degrees
11. angle whose measure is greater than 90 degrees but less than 180 degrees
12. angle whose measure is greater than 0 but less than 90 degrees
13. triangle with three equal sides
14. triangle with no congruent sides
15. triangle with two congruent sides
16. closed figure formed with line segments
17. four-sided polygon
18. quadrilateral with one pair of parallel sides
19. quadrilateral with two pairs of parallel sides
20. parallelogram with four congruent sides
21. parallelogram with four right angles
22. parallelogram with four congruent sides and four right angles
23. translation (also known as a slide)
24. reflection (also known as a flip)
25. rotation (also known as a turn)

26. 

27. $A = (3,0)$; $B = (4,4)$; $C = (1,2)$; and $D = (2,1)$

28. $2.8 \text{ km} = 2,800 \text{ meters}$

29. $\frac{64}{8} = 8 \text{ cups}$

$$5 \text{ hr } 17 \text{ min} = 4 \text{ hr } 77 \text{ min}$$

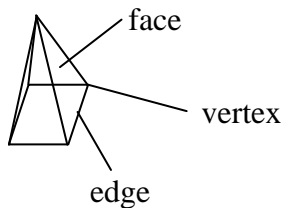
30. $\underline{-4 \text{ hr } 43 \text{ min}} = \underline{-4 \text{ hr } 43 \text{ min}}$
34 min faster

31. C

32. Volume = $lwh = 20 \times 12 \times 14 = 3,360 \text{ inches}^3$

33. Area of triangle = $\frac{bh}{2} = \frac{(18 \times 14)}{2} = 126 \text{ inches}^2$

34. Faces = 5



35. $\frac{8}{30} = \frac{y}{300}$

$$30y = 2400$$

$$\frac{30y}{30} = \frac{2400}{30}$$

$$y = 80 \text{ left-handed students}$$

36. fraction: $\frac{6}{8} = \frac{3}{4}$ (always simplify your answer)

decimal: $\frac{3}{4} = \frac{x}{100}$ and $\frac{75}{100} = .75$

$$4x = 300$$

$$\frac{4x}{4} = \frac{300}{4}$$

$$x = 75$$

percent: $.75 = 75\%$

37. $\frac{3}{7} = \frac{12}{R}$

$$3R = 84$$

$$\frac{3R}{3} = \frac{84}{3}$$

$$R = 28 \text{ centimeters}$$

38. $\frac{25}{100} = \frac{x}{200}$

$$100x = 5000$$

$$\frac{100x}{100} = \frac{5000}{100}$$

$$x = 50 \text{ students who liked either strawberry or maple nut}$$

39. $110 - 60 = 50$ more students

40. mean = $12 + 16 + 8 + 12 + 22 = \frac{70}{5} = 14$

median = 8, 12, 12, 16, 22 = 12 (the middle number or median)

range = $22 - 8 = 14$

mode = 12 (the number that occurs most often)

41. $2 \times 4 \times 5 = 40$ possible combinations

42. $4 \times 3 \times 2 \times 1 = 24$ possible orders

43. circumference = $\pi d = 18 \times 3 = 54$ inches

44. $20 + 20 + 20 + 20 = 80$ (the least number of sit-ups)

$32 + 32 + 32 + 32 = 128$ (the greatest number of sit-ups)

So Natalie did between 80 and 128 sit-ups.

45. $(3 \times \$11) + (2 \times \$7) = E$ (the amount Trisha earned)

46. Andrew needs to know how many payments he must make.