Math 20, HW 17 Section 3.2 Name: _____

1. When a fraction is followed by the word of, such as $\frac{1}{3}\ of$, it indicates that we are to find a part of some quantity using _____.

9. Determine whether each product is positive or negative. *You do not have to find the answer.*

   a. $-\frac{1}{8} \cdot \frac{3}{5}$

   b. $-\frac{4}{5}\left(\frac{1}{3}\right)\left(-\frac{1}{8}\right)$

   c. $-\frac{7}{16}\left(-\frac{2}{21}\right)$

   d. $-\frac{3}{4}\left(-\frac{8}{9}\right)\left(-\frac{1}{2}\right)$

In 17 - 43 odd, evaluate each expression.

17. $\frac{1}{4} \cdot \frac{1}{2}$

19. $\frac{1}{9} \cdot \frac{1}{5}$

21. $\frac{2}{3} \cdot \frac{7}{9}$

23. $\frac{8}{11} \cdot \frac{3}{7}$

25. $-\frac{4}{5} \cdot \frac{1}{3}$

27. $\frac{5}{6}\left(-\frac{7}{12}\right)$

29. $\frac{1}{8} \cdot 9$

31. $\frac{1}{2} \cdot 5$

33. $\frac{11}{10} \cdot \frac{5}{11}$

35. $\frac{6}{49} \cdot \frac{7}{6}$

37. $\frac{3}{4}\left(-\frac{8}{35}\right)\left(-\frac{7}{12}\right)$

39. $-\frac{5}{8}\left(\frac{16}{27}\right)\left(-\frac{9}{25}\right)$

41. a. $\left(\frac{3}{5}\right)^2$

    b. $\left(-\frac{3}{5}\right)^2$

43. a. $-\left(-\frac{1}{6}\right)^2$

    b. $\left(-\frac{1}{6}\right)^3$

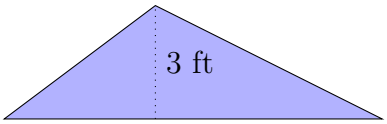
In 45 and 47, find each product. Write your answer in simplest form.

45. $\frac{3}{4}$ of $\frac{5}{8}$

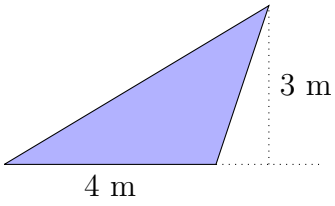
47. $\frac{1}{6}$ of 54

In exercises 49 - 55 odd, find the area of each triangle.

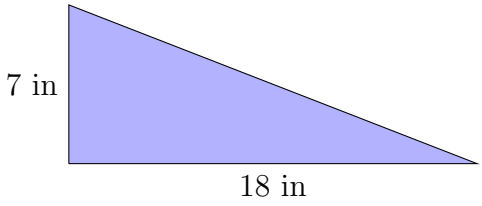
49.



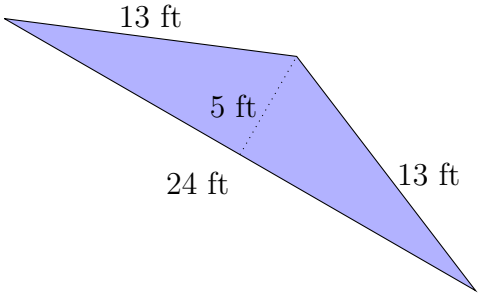
53.



51.



55.



57. Complete the multiplication table of fractions.

·	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{6}$
$\frac{1}{2}$					
$\frac{1}{3}$					
$\frac{1}{4}$					
$\frac{1}{5}$					
$\frac{1}{6}$					

In exercises 59 - 85 odd, evaluate the expression. Write your answer in simplest form.

59. $-\frac{15}{24} \cdot \frac{8}{25}$

61. $\frac{3}{8} \cdot \frac{7}{16}$

63. $\left(\frac{2}{3}\right)\left(-\frac{1}{16}\right)\left(-\frac{4}{5}\right)$

65. $-\frac{5}{6} \cdot 18$

67. $\left(-\frac{3}{4}\right)^3$

69. $\frac{3}{4} \cdot \frac{4}{3}$

71. $\frac{5}{3}\left(-\frac{6}{15}\right)(-4)$

73. $-\frac{11}{12} \cdot \frac{18}{55} \cdot 5$

75. $\left(-\frac{11}{21}\right)\left(-\frac{14}{33}\right)$

77. $-\left(-\frac{5}{9}\right)^2$

79. $\frac{7}{10}\left(\frac{20}{21}\right)$

81. $\frac{3}{4}\left(\frac{5}{7}\right)\left(\frac{2}{3}\right)\left(\frac{7}{3}\right)$

83. $-\frac{14}{15}\left(-\frac{11}{8}\right)$

85. $\frac{3}{16} \cdot 4 \cdot \frac{2}{3}$

87. SENATE RULES A *filibuster* is a method U.S. Senators sometimes use to block passage of a bill or appointment by talking endlessly. It takes $\frac{3}{5}$ of those voting in the Senate to break a filibuster. If all 100 Senators cast a vote, how many of their votes does it take to break a filibuster?

89. BOUNCING BALLS A tennis ball is dropped from a height of 54 inches. Each time it hits the ground, it rebounds one-third of the *previous* height that it fell. Find the three missing rebound heights in the illustration found in the text on page 230.

91. COOKING Use the recipe below, along with the concept of multiplication of fractions, to find how much sugar and how much molasses are needed to make *one dozen* cookies. (Hint: this recipe is for *two dozen* cookies.)

Gingerbread Cookies	
$\frac{3}{4}$ cup sugar	$\frac{1}{2}$ cup water
2 cups flour	$\frac{2}{3}$ cup shortening
$\frac{1}{8}$ teaspoon allspice	$\frac{1}{4}$ teaspoon salt
$\frac{1}{3}$ cup dark molasses	$\frac{3}{4}$ teaspoon ginger

94. ICEBERGS About $\frac{9}{10}$ of the volume of an iceberg is below the water line.

a. What fraction of the volume of an iceberg is *above* the water line?

b. Suppose an iceberg has a total volume of 18,700 cubic meters. What is the volume of the part of the iceberg that is above the water line?