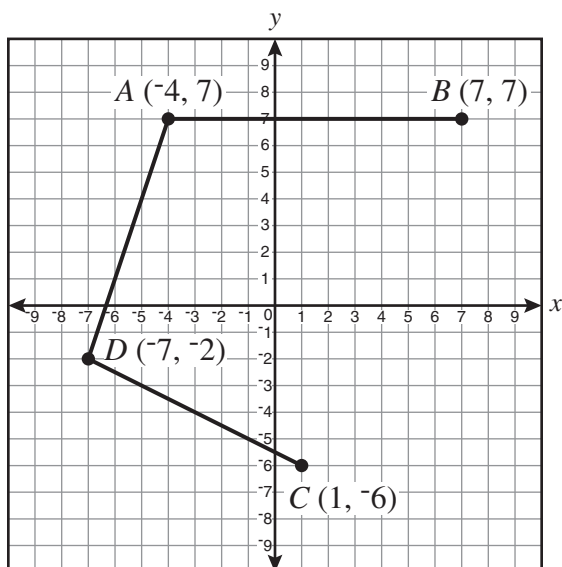


1

Marcella is designing an outdoor stage. When complete, the stage will be represented by polygon $ABCD$ on the coordinate plane below.



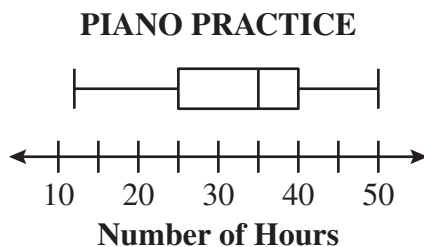
SCALE

1 unit represents 5 feet

What is the actual distance, to the nearest foot, from B to C ?

2

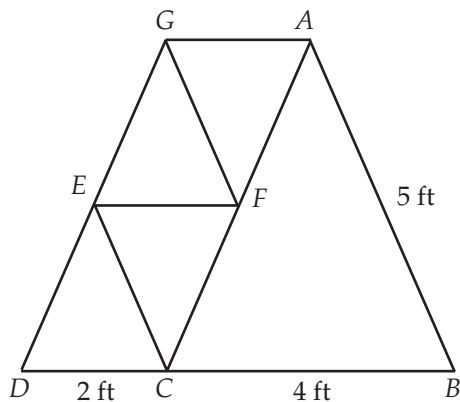
Ms. Davis drew a box-and-whisker plot to display data about the number of hours her piano students practiced last month, as shown below.



What whole number best represents the median number of hours her students practiced playing the piano last month?

3

An architect is using isosceles triangles in the design of a bridge. In the diagram below, all line segments represent the steel beams needed to build this section of the bridge. Triangle DEC is similar to $\triangle CAB$ and congruent to $\triangle AFG$.



What is the length, in feet (ft), of segment EC ?

- 4 The formula for the area of a triangle is shown below.

$$A = \frac{1}{2}bh$$

Which of the following is the solution for h in terms of A and b ?

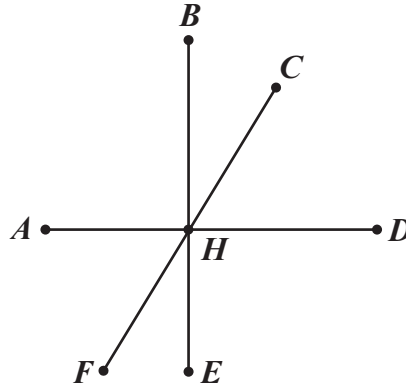
- A. $h = \frac{2A}{b}$
- B. $h = \frac{Ab}{2}$
- C. $h = A - \frac{1}{2}b$
- D. $h = 2A - b$
- 5 Sami installed a 6-foot-tall cylindrical storage tank to collect rainwater from the roof of her house. She used the rainwater to water the lawn and garden during dry spells. Sami recorded the rise in the water level in her storage tank after each of 3 rainstorms. Her results are shown in the table below.

Rainfall (in inches)	Rise of Water Level in Storage Tank (in inches)
1.5	24
0.5	8
2.5	40

Which is the best prediction of the rise of the water level, in inches, in her tank after a storm produced 2.25 inches of rain?

- F. 16 inches
- G. 28 inches
- H. 32 inches
- I. 36 inches

- 6 The illustration below is made up of \overline{AD} , \overline{BE} , and \overline{CF} . All three segments intersect at point H .



\overline{AD} is perpendicular to \overline{BE} . If the measure of $\angle FHA$ is 65° , then what is the measure of $\angle BHC$?

- 7 Mrs. Rafferty put four expressions on the board and asked her students to simplify them.

Expression 1	$4.6507 - 5.196$
Expression 2	$\sqrt{45 - 9}$
Expression 3	$ -2 - 1 $
Expression 4	$(-3)^3$

Which simplified expression has the **least** value?

- F. Expression 1
- G. Expression 2
- H. Expression 3
- I. Expression 4

8

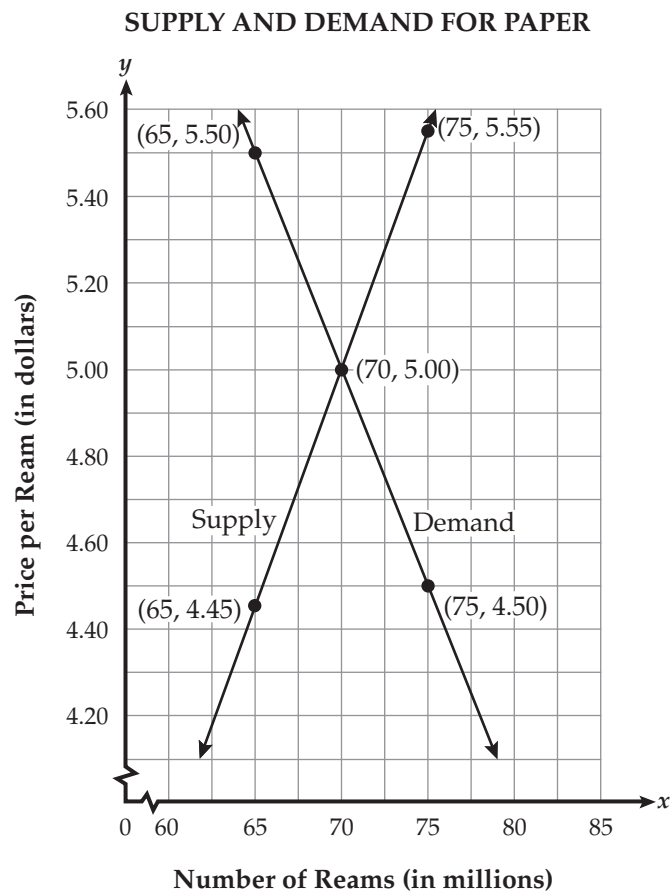
An economist is helping a paper company evaluate the demand for reams of paper at different selling prices. The point at which the supply and demand graphs intersect is referred to as *market equilibrium*.



The economist graphed the supply and demand equations shown below.

Demand equation: $y = -0.1x + 12$

Supply equation: $y = 0.11x - 2.7$



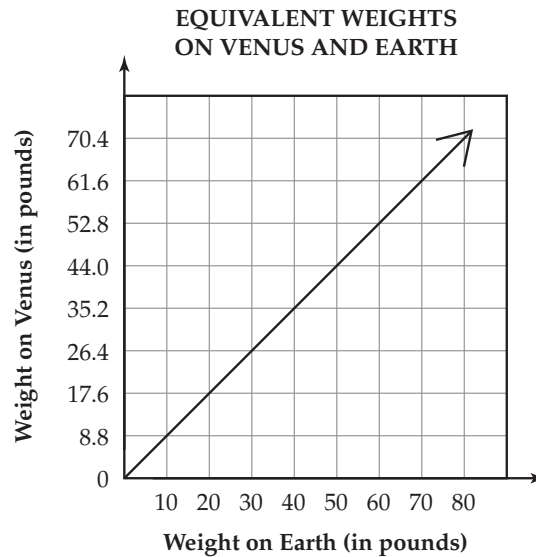
What is the price per ream, **in dollars**, of the *market equilibrium*?

9

A farmer needs to calculate the number of cubic yards in 837 cubic feet of soil. How many **cubic yards** are equivalent to 837 cubic feet?



- 10 The graph below represents the equivalent weights, in pounds, of people on the planets Venus and Earth.



Which equation best represents the relationship shown in the graph?

- A. $y = 0.88x$
 B. $y = 1.14x$
 C. $y = 8.8x$
 D. $y = 10x$
- 11 The average yearly rainfall for a town in California is 14 inches. The yearly rainfall for each of the past 10 years was within 6 inches of the average yearly rainfall. Which number line below shows the range of the yearly rainfall for the past 10 years?

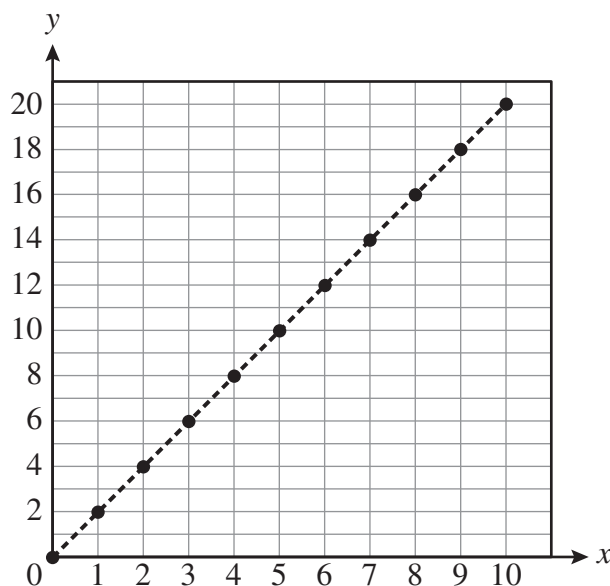
- F.
- G.
- H.
- I.

- 12 Listed below are 7 of Martha's quiz scores. When Martha added 2 more quiz scores to the list below, the median score in the list did not change.

95, 87, 85, 85, 90, 89, 90

Which of the following scores could be added to the list without changing the **median** score?

- A. 86 and 87
 - B. 90 and 98
 - C. 88 and 96
 - D. 80 and 82
- 13 A function is represented in the graph below.



Which of the following situations could be represented by the function shown in the graph?

- F. For every girl (y) in the class, there are twice as many boys (x).
- G. The Atlanta airport has 3 planes landing (y) for every 6 planes taking off (x).
- H. For every raffle ticket sold (x), the cost is 1 dollar (y).
- I. The total amount of Carol's mortgage (x) is one-half of Sam's rent (y).