

Student: Al Brewer
Date: 4/12/14
Time: 1:58 AM

College: MAT 012: Intermediate Algebra

Assignment: MML 5b (Sections 6.5 - 6.7)

11. A camel can drink 15 gallons of water in 10 minutes. At this rate, how much water can the camel drink in 2 minutes?
 gal
(Type an integer or decimal rounded to one decimal place as needed.)
12. Sally can paint a room in 8 hours while it takes Steve 4 hours to paint the same room. How long would it take them to paint the room if they worked together?
It would take hours.
(Type an integer or decimal rounded to one decimal place as needed.)
13. The speed of a river current is 3 mph. If a boat travels 30 miles downstream in the same time that it takes to travel 20 miles upstream, find the speed of the boat in still water.
The speed of the boat in still water is mph.
14. Two trains going in opposite directions leave at the same time. Train B travels 5 mph faster than train A. In 6 hours the trains are 510 miles apart. Find the speed of each.
The speed of train A is mph.
The speed of train B is mph.
15. Two joggers, one averaging 9 mph and one averaging 8 mph, start from a designated initial point. The slower jogger arrives at the end of the run 15 minutes after the other jogger. Find the distance of the run.
The distance of the run is miles.
(Type an integer or decimal rounded to one decimal place as needed.)
16. In 5 minutes, a conveyor belt moves 700 pounds of recyclable aluminum from the delivery truck to a storage area. A smaller belt moves the same quantity of cans the same distance in 9 minutes. If both belts are used, find how long it takes to move the cans to the storage area.
The conveyor belts can move the 700 pounds of recyclable aluminum from the delivery truck to a storage area in minutes.
(Simplify your answer. Type an integer, fraction, or a mixed number.)

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17. A cyclist rode the first 36-mile portion of his workout at a constant speed. For the 16-mile cooldown portion of his workout, he reduced his speed by 5 miles per hour. Each portion of the workout took the same time. Find the cyclist's speed during the first portion and find his speed during the cooldown portion.

The cyclist's speed during the first portion was miles per hour and his speed during the second portion was miles per hour.

18. A doctor recorded a body-mass index of 37 on a patient's chart. Later, a nurse notices that the doctor recorded the patient's weight as 207 pounds but neglected to record the patient's height. Find the height. (The formula for body-mass index B is given by the equation, $B = \frac{705w}{h^2}$, where w is weight in pounds and h is height in inches.)

The height of the patient is inches. (Round to the nearest whole number as needed.)

19. If y varies directly as x , find the constant of variation k and the direct variation equation for the situation.

$$y = 4 \text{ when } x = 32$$

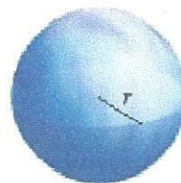
Find the constant of variation k .

$$k = \text{} \text{ (Type an integer or a fraction. Simplify your answer.)}$$

Write the direct variation equation.

$$y = \text{}$$

20. The weight of a synthetic ball varies directly with the cube of its radius. A ball with a radius of 2 inches weighs 1.60 pounds. Find the weight of a ball of the same material with a 3-inch radius.



The weight of a ball of the same material with a 3-inch radius is lb.
(Type an integer or a decimal.)

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21. The amount P of pollution varies directly with the population N of people. City A has a population of 468,000 and produces 260,000 tons of pollutants. Find how many tons of pollution we should expect City B to produce, if we know that its population is 350,000.

City B produces tons of pollution.

(Do not round until the final answer. Then round to the nearest ton as needed.)

22. If y varies inversely as x , find the constant of variation and the inverse variation equation.

$$y = 120 \text{ when } x = 6$$

The constant of variation k is .

(Type an integer or a simplified fraction.)

Inverse variation equation is $y =$.

(Use integers or fractions for any numbers in the expression.)

23. Pairs of markings a set distance apart are made on highways so that police can detect drivers exceeding the speed limit. Over a fixed distance, the speed R varies inversely with the time T . In one particular pair of markings, R is 65 mph when T is 7 seconds. Find the speed of a car that travels the given distance in 9 seconds.

$R =$ mph (Round to the nearest whole number.)

24. The maximum weight that a rectangular beam can support varies jointly as its width and the square of its height and inversely as its length. If a beam $\frac{1}{3}$ foot wide, $\frac{1}{2}$ foot high, and 11 feet long can support 20 tons, find how much a similar beam can support if the beam is $\frac{1}{4}$ foot wide, $\frac{1}{4}$ foot high, and 17 feet long.

The maximum weight is tons. (Round to one decimal place as needed.)

25. The intensity of light (in foot-candles) varies inversely as the square of x , the distance in feet from the light source. The intensity of light 2 feet from the source is 80 foot-candles. How far away is the source if the intensity of light is 6 foot-candles?

The intensity of light is 6 foot-candles when the distance from the light source is feet.

(Round to two decimal places as needed.)