

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

# Inverse Variation Assignment

Solve problem involving Inverse Variation.

Variable  $h$  varies inversely as  $y$ . If  $h = 5$  when  $y = 20$

1. Find the constant Value.
2. Find  $y$  when  $h = 2$
3. Find  $y$  when  $h = 10$
4. Find  $y$  when  $h = 20$
5. Find  $y$  when  $h = 4$

Variable  $t$  is inversely proportional to  $u$ . If  $t = 10$  when  $u = \frac{1}{2}$

6. Find the Constant value
7. Find  $t$  when  $u = 1$
8. Find  $t$  when  $u = 5$
9. Find  $t$  when  $u = 10$
10. Find  $t$  when  $u = 15$

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## Inverse Variation Assignment

11. If 5 men can do a painting job in 3 days, how many days will it take 8 men to do the job?

12. How long will it take a car to travel a certain distance at 60 km/ h if the same distance can be traveled in 8 hours at 40km/h.

13. Jo Anne Sits 1.5 meters from the center of a seesaw. Dianne who weights 18 kg balances the seesaw by sitting 2 meters from the center. How many kilograms does Jo Anne weight?

14. A 10 cm diameter pulley turns 54 revolutions per minute. If this connected by a belt to another pulley with a diameter of 12cm what is its speed in revolution per minute?

15. Ten thousand dollars invested at 12% interest per annum. How much should be invested at 8% interest if two investments will receive the same amount of income?

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## Inverse Variation Assignment

16. The resistance of a wire varies inversely as the square of its diameter. If a wire 0.6 cm in diameter has a resistance of 10 ohms, what is the resistance of the same lengths of wire 0.2 cm in diameter?

17. If 10 carpenter can build a house in 30 days, how long will it take 12 carpenters to do the same work, provided it can be done as efficient by 12 as by 10?

18. If a man can build a fence in 32 days working 6 hours a day, in how many days could he build it working 8 hours a day?

19. A book has 480 pages when there are 23 lines on a page. How many pages will it have if it is printed with 9 more lines on a page?

20. If 3 pipe can fill a swimming pool in 1 hour and 25 minutes, how long would it take to fill the same swimming pool if 5 pipes were used?

# Inverse Variation Assignment

Answer:

Solve problem involving Inverse Variation.

Variable  $h$  varies inversely as  $y$ . If  $h = 5$  when  $y = 20$

1. Find the constant Value.

Solution:

$$5 = \frac{k}{20}$$

$$k = 5(20)$$

$$k = 100$$

3. Find  $y$  when  $h = 10$

Solution:

$$10 = \frac{100}{y}$$

$$10y = 100$$

$$y = 10$$

5. Find  $y$  when  $h = 4$

$$4 = \frac{100}{y}$$

$$4y = 100$$

$$y = 25$$

2. Find  $y$  when  $h = 2$

Solution:

$$2 = \frac{100}{y}$$

$$2y = 100$$

$$y = 50$$

4. Find  $y$  when  $h = 20$

Solution:

$$20 = \frac{100}{y}$$

$$20y = 100$$

$$y = 5$$

Variable  $t$  is inversely proportional to  $u$ . If  $t = 10$  when  $u = \frac{1}{2}$

6. Find the Constant value

Solution:

$$10 = \frac{k}{\frac{1}{2}}$$

$$k = 10\left(\frac{1}{2}\right)$$

$$k = 5$$

8. Find  $t$  when  $u = 5$

Solution:

$$t = \frac{5}{5}$$

$$t = 1$$

10. Find  $t$  when  $u = 15$

Solution:

$$t = \frac{5}{15}$$

$$t = \frac{1}{3}$$

7. Find  $t$  when  $u = 1$

Solution:

$$t = \frac{5}{1}$$

$$t = 5$$

9. Find  $t$  when  $u = 10$

Solution:

$$t = \frac{5}{10}$$

$$t = \frac{1}{2}$$

# Inverse Variation Assignment

11. If 5 men can do a painting job in 3 days, how many days will it take 8 men to do the job?

Given:

Days	Men
3	5
?	8

$$3 = \frac{k}{5}$$

$$k = 5(3)$$

$$k = 15$$

$$d = \frac{15}{8}$$

$$d = 1\frac{7}{8}$$

**1 day and 21 hours.**

12. How long will it take a car to travel a certain distance at 60 km/ h if the same distance can be traveled in 8 hours at 40km/h.

Solution:

Speed	time
40 km/h	8
60 km/h	?

$$8 = \frac{k}{40}$$

$$k = 8(40)$$

$$k = 320$$

$$t = \frac{320}{60}$$

$$t = 5\frac{1}{3}$$

**5 hours and 20 minutes**

13. Jo Anne Sits 1.5 meters from the center of a seesaw. Dianne who weights 18 kg balances the seesaw by sitting 2 meters from the center. How many kilograms does Jo Anne weight?

Solution:

Distance	Weight
1.5	?
2	18

$$2 = \frac{k}{18}$$

$$k = 2(18)$$

$$k = 36$$

$$1.5 = \frac{36}{w}$$

$$1.5w = 36$$

$$w = 24$$

**Joanne Weight 24 kg.**

14. A 10 cm diameter pulley turns 54 revolutions per minute. If this connected by a belt to another pulley with a diameter of 12cm what is its speed in revolution per minute?

Solution:

Diameter	Revolution
10	54
12	?

$$10 = \frac{k}{54}$$

$$k = 10(54)$$

$$k = 540$$

# Inverse Variation Assignment

$$12 = \frac{540}{r} \quad 12r = 540 \quad r = 45$$

15. Ten thousand dollars invested at 12% interest per annum. How much should be invested at 8% interest if two investments will receive the same amount of income?

Solution:

Money	Rate
10000	0.12
?	0.08

$$10000 = \frac{k}{0.12} \quad k = 10000(0.12) \quad k = 1200$$

$$m = \frac{1200}{0.08} \quad m = 15000$$

16. The resistance of a wire varies inversely as the square of its diameter. If a wire 0.6 cm in diameter has a resistance of 10 ohms, what is the resistance of the same lengths of wire 0.2 cm in diameter?

Solution:

Resistance	(Diameter) <sup>2</sup>
10	0.6 <sup>2</sup> = 0.36
?	0.2 <sup>2</sup> = 0.04

$$10 = \frac{k}{(0.6)^2} \quad 10(0.6)^2 = k \quad k = 10(0.36) \quad k = 3.6$$

$$r = \frac{3.6}{(0.2)^2} \quad r = \frac{3.6}{0.04} \quad r = 90$$

17. If 10 carpenter can build a house in 30 days, how long will it take 12 carpenters to do the same work, provided it can be done as efficient by 12 as by 10?

Solution:

workers	days
10	30
12	?

$$30 = \frac{k}{10} \quad k = 30(10) \quad k = 300$$

$$d = \frac{300}{12} \quad d = 25 \quad 25 \text{ days}$$

# Inverse Variation Assignment

18. If a man can build a fence in 32 days working 6 hours a day, in how many days could he build it working 8 hours a day?

Solution:

time	days
6	32
8	?

$$32 = \frac{k}{6} \quad k = 6(32) \quad k = 192$$

$$d = \frac{192}{8} \quad d = 24 \quad \text{24 days}$$

19. A book has 480 pages when there are 23 lines on a page. How many pages will it have if it is printed with 9 more lines on a page?

Solution:

Pages	Lines
480	23
?	23+9=32

$$480 = \frac{k}{23} \quad k = 480(23) \quad k = 11040$$

$$p = \frac{11040}{32} \quad p = 345 \quad \text{345 pages}$$

20. If 3 pipe can fill a swimming pool in 1 hour and 25 minutes, how long would it take to fill the same swimming pool if 5 pipes were used?

Solution:

time	pipe
1 hr 25 min = 1.42	3
?	5

$$1.42 = \frac{k}{3} \quad k = 3(1.42) \quad k = 4.26$$

$$t = \frac{4.26}{5} \quad t = 0.852(60) \quad t = 51.12(60) \quad t = 51 \text{ minutes } 7.2 \text{ seconds}$$