



# MATHS

## BOOKS - PSEB

### DIRECT AND INVERSE PROPORTIONS

#### Example

1. The cost of 5 metres of a particular quality of cloth is Rs 210. Tabulate the cost of 2, 4, 10 and 13 metres of cloth of the same type.



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2. An electric pole, 14 metres high, casts a shadow of 10 metres. Find the height of a tree that casts a shadow of 15 metres under similar conditions.

A. 21 m

B. 23m

C. 18m

D. 30 m

**Answer: A**



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3. If the weight of 12 sheets of thick paper is 40 grams, how many sheets of the same paper would weigh  $2\frac{1}{2}$  kilograms?



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4. A train is moving at a uniform speed of 75 km/hour : How far will it travel in 20 minutes?

A. 45 km

B. 25 km

C. 35 km

D. 15 km

**Answer: B**



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5. A train is moving at a uniform speed of 75 km/hour : Find the time required to cover a distance of 250 km.



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6. The scale of a map is given as 1:30000000.

Two cities are 4 cm apart on the map. Find the actual distance between them.



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7. A mixture of paint is prepared by mixing 1 part of red pigments with 8 parts of base. In the following table, find the parts of base that

need to be added.

Parts of red pigment	1	4	7	12	20
Parts of base	8	...	...	...	...



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8. A machine in a soft drink factory fills 840 bottles in six hours. How many bottles will it fill in five hours?



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**9.** A photograph of a bacteria enlarged 50,000 times attains a length of 5 cm as shown in the diagram. What is the actual length of the bacteria? If the photograph is enlarged 20,000 times only, what would be its enlarged length?



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**10.** In a model of a ship, the mast is 9 cm high, while the mast of the actual ship is 12 m high. If the length of the ship is 28 m, how long is

the model ship?



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**11.** Suppose 2 kg of sugar contains  $9 \times 10^6$  crystals. How many sugar crystals are there in :  
5 kg of sugar?



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**12.** Suppose 2 kg of sugar contains  $9 \times 10^6$  crystals. How many sugar crystals are there in :  
1.2 kg of sugar?



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**13.** Rashmi has a road map with a scale of 1 cm representing 18 km. She drives on a road for 72 km. What would be her distance covered in the map?



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**14.** A 5 m 60 cm high vertical pole casts a shadow 3 m 20 cm long. Find at the same time : the length of the shadow cast by another pole 10 m 50 cm high



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**15.** A 5 m 60 cm high vertical pole casts a shadow 3 m 20 cm long. Find at the same time : the height of a pole which casts a shadow 5m long.



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**16.** A loaded truck travels 14 km in 25 minutes. If the speed remains the same, how far can it travel in 5 hours?



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**17.** 6 pipes are required to fill a tank in 1 hour 20 minutes. How long will it take if only 5 pipes of the same type are used?



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**18.** There are 100 students in a hostel. Food provision for them is for 20 days. How long will these provisions last, if 25 more students join the group?



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**19.** If 15 workers can build a wall in 48 hours, how many workers will be required to do the same work in 30 hours?



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**20.** Which of the following are in inverse proportion : The number of workers on a job and the time to complete the job.



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**21.** Which of the following are in inverse proportion : The time taken for a journey and the distance travelled in a uniform speed.



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22. Which of the following are in inverse proportion : Area of cultivated land and the crop harvested.



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23. Which of the following are in inverse proportion : The time taken for a fixed journey and the speed of the vehicle.



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**24.** Which of the following are in inverse proportion : The population of a country and the area of land per person.



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**25.** In a Television game show, the prize money of Rs.1,00,000 is to be divided equally amongst the winners. Complete the following table and find whether the prize money gives to an

individual winner is directly or inversely proportional to the number of winners?



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**26.** Rehman is making a wheel using spokes. He wants to fix equal spokes in such a way that the angles between any pair of consecutive spokes are equal. Help him by completing the following table:







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**28.** If a box of sweets is divided among 24 children, they will get 5 sweets each. How many would each get, if the number of the children is reduced by 4?



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**29.** A farmer has enough food to feed 20 animals in his cattle for 6 days. How long would the food last if there were 10 more animals in his cattle?





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**30.** A contractor estimates that 3 persons could rewire Jasminer's house in 4 days. If, he uses 4 persons instead of three, how long should they take to complete the job?



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**31.** A batch of bottles were packed in 25 boxes with 12 bottles in each box. If the same batch is packed using 20 bottles in each box, how

many boxes would be filled



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**32.** A factory requires 42 machines to produce a given number of articles in 63 days. How many machines would be required to produce the same number of articles in 54 days?



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**33.** A car takes 2 hours to reach a destination by travelling at the speed of 60 km/h. How long will it take when the car travels at the speed of 80 km/h?



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**34.** Two persons could fit new windows in a house in 3 days : One of the persons fell ill before the work started. How long would the job take now?





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**35.** Two persons could fit new windows in a house in 3 days : How many persons would be needed to fit the windows in one day?



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**36.** A school has 8 periods a day each of 45 minutes duration. How long would each period be, if the school has 9 periods a day,

assuming the number of school hours to be the same?



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