

Subject: Maths

Class: 7-8

Topic: Direct Proportion (Direct Variation)

Levels: Basic, Intermediate, Advanced

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### Level: Basic

1. If 1 pen costs ₹10, find the cost of 5 pens. [ ? ]
2. A car travels 50 km in 1 hour. How far will it go in 3 hours at the same speed? [ ? ]
3. If 1 kg of sugar costs ₹40, how much do 2 kg of sugar cost? [ ? ]
4. Complete the ratio:  $1 : 12 = 2 : \underline{\hspace{2cm}}$
5. If 5 notebooks cost ₹100, what is the cost of 1 notebook? [ ? ]
6. A worker earns ₹500 in 1 day. How much will he earn in 7 days? [ ? ]
7. If 3 liters of milk cost ₹150, find the cost of 6 liters. [ ? ]
8. A tailor uses 2 meters of cloth for 1 shirt. How many meters are needed for 10 shirts? [ ? ]
9. If  $x$  and  $y$  are in direct proportion, and  $x=2$  when  $y=10$ , find  $y$  when  $x=4$ . [ ? ]
10. An eraser costs ₹5. How many erasers can Rahul buy with ₹25? [ ? ]

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### Level: Intermediate

1. A map uses a scale where  $1 \text{ cm} = 50 \text{ km}$ . Find the actual distance if the map distance is  $8 \text{ cm}$ . [ ? ]
2. If 12 bananas cost ₹60, find the cost of 25 bananas. [ ? ]
3. A machine prints 200 pages in 30 minutes. How many pages can it print in 1.5 hours? [ ? ]
4. If the weight of 8 identical books is  $2 \text{ kg}$ , find the weight of 20 such books. [ ? ]
5. A train covers  $140 \text{ km}$  in 2 hours. How much time is needed to cover  $280 \text{ km}$ ? [ ? ]
6. If 15 tickets for a local fair cost ₹450, how much will 8 tickets cost? [ ? ]
7. A recipe needs 2 cups of flour for 12 cookies. How many cups are needed for 30 cookies? [ ? ]
8. If  $5 \text{ kg}$  of rice is enough for 20 people, how many kg are needed for 50 people? [ ? ]
9. The shadow of a  $3 \text{ m}$  pole is  $4 \text{ m}$ . Find the height of a building whose shadow is  $24 \text{ m}$ . [ ? ]
10. If  $y \propto x$  and  $y = 15$  when  $x = 3$ , find the constant of variation ( $k$ ). [ ? ]

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### Level: Advanced

1. A car consumes 8 liters of petrol for 120 km. How much petrol is needed for a 450 km trip? [ ? ]
2. If a deposit of ₹5,000 earns ₹400 interest, how much interest will ₹12,500 earn? [ ? ]
3. The cost of a diamond varies directly with its weight. If 2 carats cost ₹80,000, find the cost of 5 carats. [ ? ]
4. A factory produces 1,500 toys in 6 days. How many more toys will it produce if it works for 4 more days? [ ? ]
5. On a scale drawing, 2 cm represents 5 meters. Find the area (in  $\text{m}^2$ ) of a square plot shown as 4 cm by 4 cm. [ ? ]
6. If 18 workers can build a wall in a specific time, how many workers (x) are needed if the work increases by 50%? [ ? ]
7. A car travels 48 km per 4 liters of fuel. If petrol is ₹100 per liter, find the cost to travel 240 km. [ ? ]
8. If  $x/y = k$ , and x increases by 20%, by what percentage must y increase to keep k constant? [ ? ]
9. A water tank fills  $\frac{1}{3}$  of its capacity in 15 minutes. How long will it take to fill the whole tank? [ ? ]
10. An athlete runs 100m in 12 seconds. At this rate, how many km will he cover in 10 minutes? [ ? ]