

EXERCISE 31

1. Find the rate for each of the following:

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|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <p>(a) Jerome pays \$225 to rent a hotel room for 3 days.</p> <p>The rate is \$ <u>75</u> per day.</p> | <p>Rate = $\frac{225}{3} = \frac{\\$}{\text{day}}$</p> <p>= \$75 per day</p> |
| <p>(b) Steve types 750 words in 15 minutes.</p> <p>The rate is _____ words per minute.</p> | <p>Rate =</p> |
| <p>(c) A machine fills 240 jars with jam in 20 minutes.</p> <p>The rate is _____ jars per minute.</p> | <p>Rate =</p> |
| <p>(d) A motorcycle can travel a distance of 102 mi on 3 gal of gas.</p> <p>The rate is _____ mi per gallon.</p> | <p>Rate =</p> |

EXERCISE 32

1. Fill in the blanks.

(a) A machine makes 45 cakes per minute.

At this rate, it will make _____ cakes in 5 minutes.

(b) Carpets are sold at \$225 per m^2 .

At this rate, a carpet of area 35 m^2 will cost \$ _____.

(c) Ben lays 25 bricks per hour.

At this rate, he will lay _____ bricks in 7 hours.

(d) Matthew's family uses 24 m^3 of water per month.

At this rate, the family will use _____ m^3 of water in 6 months.

EXERCISE 33

$$D = R \cdot t \quad (\text{total}) = \text{Rate} \times \text{time}$$

1. There are 2000 words on a page. How long will Alice take to read the page if she reads at the rate of 100 words per minute?

$$2000 \text{ words} = 100 \frac{\text{words}}{\text{min}} * X \frac{\text{min}}{1}$$

$$\frac{2000 \text{ words}}{100 \text{ words}} = X \text{ min}$$

$$20 \text{ min} = X$$

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2. The room rate at Sunshine Hotel is \$80 per day. At this rate, how many days did Ben stay at the hotel if he paid \$400?

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3. A wheel makes 6 revolutions per minute. At this rate, how long will it take to make 45 revolutions?

4. The workers in a factory were paid at the rate of \$6 per hour. Justin worked for 7 hours. How much was he paid?

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5. A machine can make 200 loaves of bread per minute. At this rate, how many loaves of bread can the machine make in 5 minutes?

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6. A car can travel 12 km on 1 liter of gas. At this rate, how much gas will be used if the car travels a distance of 180 km?

EXERCISE 34

1. A taxi driver earns \$300 in 5 days.

The rate is \$ $\frac{300}{5} = \$60$ per day.

(a) At this rate, he will earn \$ $60 \times 6 = \$360$ in 6 days.

(b) He will take 20 days to earn \$1200.

$$\begin{aligned} \frac{\$60}{\text{day}} \times ? \text{ days} &= \$1200 \\ ? \text{ days} &= \frac{\$1200}{\$60 \text{ per day}} = 20 \text{ days} \end{aligned}$$

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2. A car travels 84 km on 6 liters of gas.

The rate is _____ km per liter.

(a) At this rate, it can travel _____ km on 16 liters of gas.

(b) It can travel 210 km on _____ liters of gas.

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3. The cost of cementing a courtyard of area 40 m² is \$1600.

The rate is \$ _____ per m².

(a) At this rate, the cost of cementing an area of 90 m² is \$ _____.

(b) The cost of cementing an area of _____ m² is \$2000.

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4. A printing machine can roll out 600 pages of printed material in 4 minutes.

The rate is _____ pages per minute.

(a) At this rate, the machine can roll out _____ pages in 15 minutes.

(b) It will take the machine _____ minutes to roll out 750 pages.

5. A watch loses time at a rate of 80 seconds in 2 days.

- (a) How many seconds will it lose in 3 days?
- (b) How long will it take to lose 200 seconds?

6. A machine can bind 1500 books in 12 minutes.

- (a) How many books can it bind in 5 minutes?
- (b) How long will it take to bind 1000 books?

EXERCISE 35

1. This table shows the rates of charges for renting bicycles.

| | |
|-----------------------|-----|
| First hour | \$3 |
| Every additional hour | \$2 |

- (a) Jacob rented a bicycle for 2 hours. How much should he pay?
- (b) Jackie rented a bicycle from 2:00 p.m. to 6:00 p.m. How much should she pay?
- (c) Four boys rented 2 bicycles for 3 hours. If they shared the cost equally, how much should each boy pay?

2. This table shows the rates of charges for water consumption in a month.

| | |
|-------------------------------------------|---------------------------|
| First 20 m ³ | \$0.56 per m ³ |
| Next 20 m ³ | \$0.80 per m ³ |
| Additional amount above 40 m ³ | \$1.17 per m ³ |

(a) What is the charge for 15 m³ of water used in a month?

(b) What is the charge for 30 m³ of water used in a month?

(c) What is the charge for 45 m³ of water used in a month?