

## Exercise Set 2 (Calculator)

1

If a train travels at a constant rate of 50 miles per hour, how many minutes will it take to travel 90 miles?

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2

Two cars leave the same point simultaneously, going in the same direction along a straight, flat road, one at 35 miles per hour and the other at 50 miles per hour. After how many minutes will the cars be 5 miles apart?

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3

If a \$6,000 contribution is divided among charities A, B, and C in a ratio of 8:5:2, respectively, how much more, in dollars, does charity A receive than charity C?

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4

If a car traveling at 60 mph is chasing a car travelling at 50 mph and is  $\frac{1}{4}$  mile behind, how many minutes will it take the first car to catch the second?

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5

A truck's gas tank can hold 18 gallons. If the tank is  $\frac{2}{3}$  full and the truck travels for 4 hours at 60 miles per hour until it runs out of gas, what is the efficiency of the truck, in miles per gallon?

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6

A motorcycle has a fuel efficiency of 60 miles per gallon when it is cruising at a speed of 50 miles per hour. How many hours can it travel at 50 miles per hour on a full tank of gas, if its tank can hold 10 gallons?

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7

If the ratio of  $a$  to  $b$  is 3 to 4, and the ratio of  $a$  to  $c$  is 5 to 2, what is the ratio of  $b$  to  $c$ ?

- A) 3 to 10
- B) 3 to 5
- C) 5 to 3
- D) 10 to 3

8

A paint mixture consists of a 3:2:11 ratio of red, violet, and white, respectively. How many ounces of violet are needed to make 256 ounces of this mixture?

- A) 32
- B) 36
- C) 46
- D) 48

9

A pool that holds 20,000 gallons is  $\frac{1}{4}$  full. A pump can deliver  $g$  gallons of water every  $m$  minutes. If the pumping company charges  $d$  dollars per minute, how much will it cost, in dollars, to fill the pool?

- A)  $\frac{5,000 md}{g}$
- B)  $\frac{5,000 gd}{m}$
- C)  $\frac{15,000 md}{g}$
- D)  $\frac{5,000 gd}{m}$

10

Yael travels to work at an average speed of 40 miles per hour and returns home by the same route at 24 miles per hour. If the total time for the round trip is 2 hours, how many miles is her trip to work?

- A) 25  
B) 30  
C) 45  
D) 60

11

A hare runs at a constant rate of  $a$  miles per hour, and a tortoise runs at a constant rate of  $b$  miles per hour, where  $0 < b < a$ . How many more hours will it take the tortoise to finish a race of  $d$  miles than the hare?

- A)  $\frac{a+b}{2d}$   
B)  $\frac{ad-bd}{ab}$   
C)  $\frac{b-a}{d}$   
D)  $\frac{ab-bd}{ad}$

12

Janice can edit 700 words per minute and Edward can edit 500 words per minute. If each page of text contains 800 words, how many pages can they edit, working together, in 20 minutes?

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13

If a printer can print 5 pages in 20 seconds, how many pages can it print in 5 minutes?

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14

Traveling at 40 miles per hour, Diego can complete his daily commute in 45 minutes. How many minutes would he save if he traveled at 50 miles per hour?

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15

If  $\frac{2a}{3b} = \frac{1}{5}$  and  $\frac{c}{2b} = \frac{1}{2}$ , what is  $\frac{a}{c}$ ?

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16

If a cyclist races at 30 miles per hour for  $\frac{1}{2}$  of the distance of a race, and 45 miles per hour for the final  $\frac{1}{2}$  of the distance, what is her average speed, in miles per hour, for the entire race?

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17

Anne can paint a room in 2 hours, and Barbara can paint the same room in 3 hours. If they each work the same rate when they work together as they do alone, how many hours should it take them to paint the same room if they work together?

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18

What is the average speed, in miles per hour, of a sprinter who runs  $\frac{1}{4}$  mile in 45 seconds? (1 hour = 60 seconds)

- A) 11.25  
B) 13.5  
C) 20  
D) 22

19

A car travels  $d$  miles in  $t$  hours and arrives at its destination 3 hours late. At what average speed, in miles per hour, should the car have gone in order to arrive on time?

- A)  $\frac{t-3}{d}$   
B)  $\frac{d}{t-3}$   
C)  $\frac{d}{t} - 3$   
D)  $\frac{d-3}{t}$

20

In three separate 1-mile races, Ellen finished with times of  $x$  minutes,  $y$  minutes, and  $z$  minutes, respectively. What was her average speed, in miles per hour, for all three races?

- A)  $\frac{x+y+z}{3}$   
B)  $\frac{3}{x+y+z}$   
C)  $\frac{x+y+z}{180}$   
D)  $\frac{180}{x+y+z}$

21

Sylvia drove 315 miles and arrived at her destination in 9 hours. If she had driven 10 miles per hour faster, how many hours would she have saved on the trip?

- A) 1.75 hours  
B) 2.00 hours  
C) 2.25 hours  
D) 2.50 hours