

4.1 Application Problems

7th Work on
odd # questions

Solve.

1. Paddling with the current, a canoeist can go 24 mi in 3 h. Against the current it takes 4 h to go the same distance. Find the rate of the canoeist in calm water and the rate of the current.
2. A pilot flying with the wind flew the 750 mi between two cities in 3 h. The return trip against the wind took 5 h. Find the rate of the plane in calm air and the rate of the wind.
3. A motorboat traveling with the current can go 100 mi in 4 h. Against the current it takes 5 h to go the same distance. Find the rate of the motorboat in still water and the rate of the current.
4. A plane flying with a tailwind flew 360 mi in 2 h. Against the wind, it took 3 h to fly the same distance. Find the rate of the plane in calm air and the rate of the wind.
5. A rowing team rowing with the current traveled 16 mi in 2 h. Against the current, the team rowed 8 mi in 2 h. Find the rate of the rowing team in calm water and the rate of the current.
6. A small plane flew 300 mi with the wind in 2 h. Against the wind, it took 3 h to travel the same distance. Find the rate of the plane in calm air and the rate of the wind.
7. A small plane flew 260 mi in 2 h with the wind. Flying against the wind, the plane flew 180 mi in 2 h. Find the rate of the plane in calm air and the rate of the wind.
8. A motorboat traveling with the current went 30 mi in 3 h. Traveling against the current the boat went 12 mi in 3 h. Find the rate of the boat in calm water and the rate of the current.
9. A crew can row 60 km downstream in 3 h. Rowing upstream, against the current, the crew traveled 24 km in 3 h. Find the rowing rate of the crew in calm water and the rate of the current.
10. A plane flew 2000 km in 5 h traveling with the wind. Against the wind, the plane could fly only 1500 km in the same amount of time. Find the rate of the plane in calm air and the rate of the wind.

4.2 Application Problems

Solve.

11. A business manager had two reports photocopied. The first report, which cost \$3 to photocopy, included 50 black-and-white pages and 10 color pages. The total cost for photocopying the 75 black-and-white and the 20 color pages in the second report was \$5. Find the cost per copy for a black-and-white page and for a color page.
12. A computer store received two shipments of calculators. The value of the first shipment, which contained 10 scientific and 15 business calculators, was \$425. The value of the second shipment, which contained 8 scientific and 20 business calculators, was \$460. Find the cost of a scientific and the cost of a business calculator.
13. A metallurgist made two purchases. The first purchase, which cost \$110, included 20 kg of a tin alloy and 25 kg of an aluminum alloy. The second purchase, which cost \$60, included 10 kg of the tin alloy and 15 kg of the aluminum alloy. Find the cost per kilogram of the tin and the aluminum alloys.
14. For \$28, a customer purchased 2 lb of kona-blend coffee and 3 lb of a mocha-blend coffee. A second customer purchased 4 lb of the kona coffee and 2 lb of the mocha coffee for a total of \$32. Find the cost per pound of the kona coffee and the mocha coffee.
15. Two coin banks contain only nickels and quarters. The total value of the coins in the first bank is \$3.30. In the second bank there are two fewer quarters than in the first bank and twice as many nickels. The total value of the coins in the second bank is \$3.10. Find the number of nickels and the number of quarters in the first bank.
16. Two coin banks contain only nickels and dimes. The total value of the coins in the first bank is \$4. In the second bank there are 10 more nickels than in the first bank and one half as many dimes. The total value of the coins in the second bank is \$3.50. Find the number of nickels and the number of dimes in the first bank.
17. The total value of the dimes and quarters in a coin bank is \$3.70. If the quarters were dimes and the dimes were quarters, the total value of the coins would be \$4. Find the number of dimes and the number of quarters in the bank.
18. The total value of the nickels and dimes in a coin bank is \$5. If the nickels were dimes and the dimes were nickels, the total value of the coins would be \$4. Find the number of nickels and the number of dimes in the bank.
19. One year ago, an adult was five times the age a child was then. One year from now the adult will be four times the age the child will be then. Find the present ages of the adult and the child.
20. If twice the age of a stamp is added to three times the age of a coin, the result is 100. The difference between five times the age of the stamp and twice the age of the coin is three. Find the age of each.