RATE

* Create a equivalent fraction set up to determine answers *

Ex. 20km at 100 km/hr ⇒ $\frac{20\text{ km}}{x} = \frac{100\text{km}}{1\text{hr}}$ ⇒ $20(1) = 100x$ (Isolate x)

⇒ $\frac{20(1)}{100} = x$

Do Q# 1-12 (Even), 25, 27

Practice

Calculate the distance travelled.

1. 3 h at 60 km/h
2. 2 h at 85 km/h
3. $\frac{1}{2}$ h at 90 km/h
4. $\frac{3}{4}$ h at 60 km/h

How long does each trip take?

5. 40 km at 80 km/h
6. 400 km at 50 km/h
7. 20 km at 100 km/h
8. 360 km at 80 km/h

Calculate each speed.

9. 300 km in 3 h
10. 400 km in 5 h
11. 360 km in 4 h
12. 40 km in $\frac{1}{2}$ h

Complete the table.

	Distance (km)	Rate (km/h)	Time (h)
13.	450	100	
14.		65	3
15.	600		8
16.		80	x
17.		90	$x+1$
18.		85	$x-1$
19.	200	x	
20.	400		x
21.		r	t
22.	D	r	
23.	D		t

Problems and Applications

24. A cruise ship left Halifax for Bermuda at 20 km/h. A private boat left for Bermuda, 1 h later and travelled at 25 km/h. After how long did the private boat overtake the cruise ship?

25. Two cars left a service centre at 16:30. One car travelled in one direction at 75 km/h. The other car travelled in the opposite direction at 85 km/h.
a) After how long were they 600 km apart?
b) At what time were they 600 km apart?

26. Two friends, one living in Winnipeg and one living in Edmonton, decided to meet on the TransCanada Highway. The distance from Edmonton to Winnipeg is about 1360 km. They both left home at 08:00 Winnipeg time. The friend from Winnipeg drove at 80 km/h, and the friend from Edmonton drove at 90 km/h.
a) After how long did they meet?
b) What was the time in Winnipeg when they met?
c) What assumptions have you made?

0.2hr = x
60min
x .2
12min

27. A plane left Vancouver for Los Angeles at 08:30 and flew at 600 km/h. Fifteen minutes later, another plane left Vancouver for Los Angeles and flew at 700 km/h.
a) How long did it take the second plane to overtake the first one?
b) At what time did it happen?

28. A car left a garage on the highway at 100 km/h. Fifteen minutes later, a police cruiser left the same garage at 120 km/h in pursuit of the car. How long did it take the cruiser to catch up with the car?

29. Write a problem involving uniform motion and ask a classmate to solve it.

Uniform Motion

* Find the difference in the rates (How much catch up)
* Calculate the distance to make up/create
  ↳ Head start or distance apart to create.

(#24) Cruise Ship = 20km/h + 20km head start
Private Boat = 5km/h faster
20km ÷ 5km/h = 4hr