Ch1 review worksheet

q 3. The sum of Lisa's age and Ellen's age is 41. Five years from now the sum of their ages will be three times Lisa's present age. How old is Lisa?

let "s" rep lisa's age
let "e" rep ellen's age

$s + e = 41$
$(s + 5) + (e + 5) = 3s$

method 1: substitution

isolate Eq.1
e=41-s

simplify Eq.2
s+5+e+5-3s=0
-2s+e=-10

Eq1......e=41-s
Eq2......-2s+e=-10

sub Eq1 into Eq.2

-2s + 41 -s = -10
-3s = -10 -41
-3s = -51
divide both sides by -3
s=17

q7. It took Terry 7 h to drive the 390 km from Cold Bay to Morgan's Cove. He averaged 60 km/h for the first part of the trip, but was forced to complete the trip at 50 km/h due to a thunderstorm. How many hours did he spend driving at 60 km/h and 50 km/h?

let "x" rep time in hours travelling at 60km/h
let "y" rep time in hours travelling at 50km/h

eq1.... $x + y = 7$
eq2... $60x + 50y = 390$

now, solve the system...

q9. Vince left Trout Creek driving at 40 km/h, Sybil followed 2 h later driving at 50 km/h. How far down the road will Sybil overtake Vince?

vince
(time, distance)
(0,0)
(1,40)
(2,80)

sybil
(t, d)
(0,0)
(1,0)
(2,0)
(3,50)
(4,100)

Use 2 ordered pairs for each person, to write equations that represent each person's journey.

$y = 40x$ $y = 50x - 100$

$40x = 50x - 100$
$-10x = -100$
$x = 10$ hours

$y = 40(10) = 400$ km
or
$y = 50(10) - 100 = 500 - 100$
  $= 400$ km

(10, 400)

Therefore, Sybil will overtake Vince 10 hours later and 400 km down the road.