Write the letter of the equation that matches each sentence. Which equation is used twice?

___ 1. Pabou $\boxed{x}$ was born a year before Duane (y).

___ 2. In three years Mckenzie $\boxed{x}$ will be Gisselle's (y) age.

___ 3. Three years ago Christopher $\boxed{x}$ was half of Joseph's (y) age today.

___ 4. Andrew $\boxed{x}$ is twice as old now as Rachel's (y) age next year.

___ 5. Three years from now Emanuel $\boxed{x}$ will be half of Anna's (y) age today.

___ 6. Three years ago Thavy $\boxed{x}$ was twice Chorn's (y) age today.

___ 7. Half of Zoe's $\boxed{x}$ age is three more than half of Keyaira's (y) age.

___ 8. Subtract three from Nasru's $\boxed{x}$ age and you have twice Tuan's (y) age.

Used twice: ___

a. $\dfrac{1}{2}x = \dfrac{1}{2}y + 3$

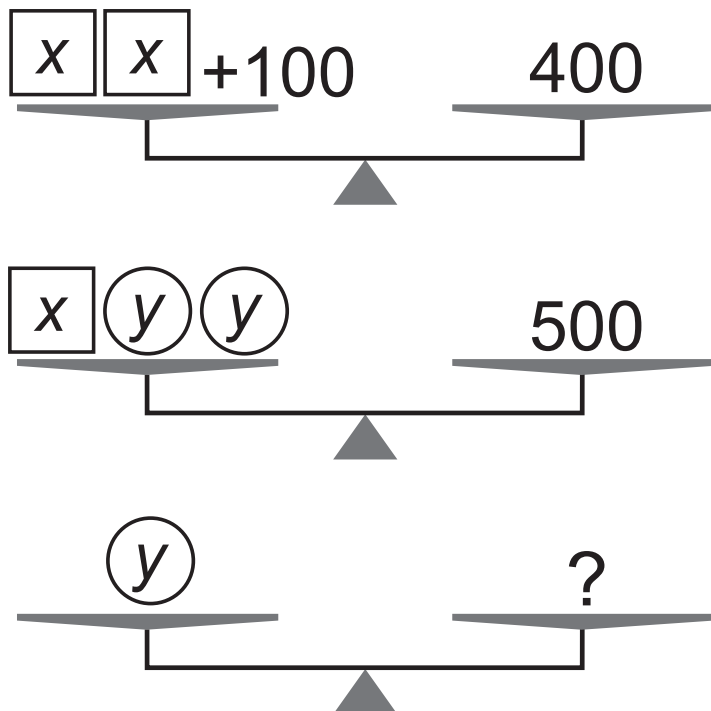b. $\dfrac{1}{2}y = x + 3$

c. $x = \dfrac{1}{2}y + 3$

d. $x = 2y + 3$

e. $x = 2(y + 1)$

f. $x = y + 1$

g. $y = x + 3$

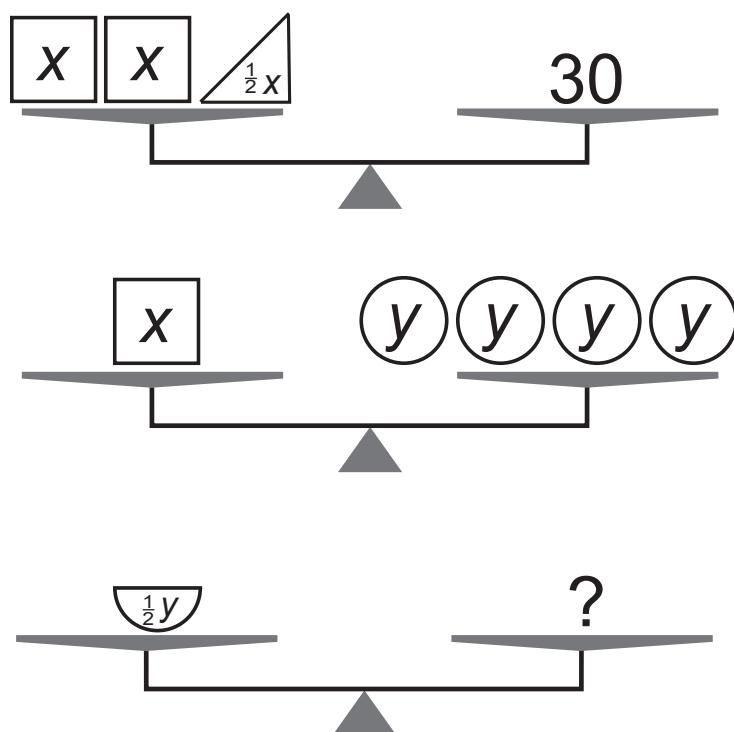# Write the answer in the box, then fill in the blanks in the proof.

x x +100   400

x y y 500

y ?

Problem 1

? = ...

From the 1st scale we know:
$2x + 100 = 400$.
Subtract ___ from both sides of this
equation so ___ = ___. _____ both
_____ of this equation by ___ so $x =$
___. Substitute ___ for x in: $2y + x = 500$
(2nd scale). So $2y +$ ___ $= 500$.
_____ ___ from both sides of this
equation so $2y = 350$. _____ both
sides of this equation by ___ so
$y =$ ___ $= ?$

x x $\frac{1}{2}x$ 30

x y y y y

$\frac{1}{2}y$?

Problem 2

? = ...

From the 1st scale we know: $2\frac{1}{2}x = 30$.
Divide both sides of this equation by ___ so
___ = ___. Substitute ___ for x in: $x = 4y$
(2nd scale). So ___ $= 4y$. _____
both sides of this equation by 4 so ___ $= y$.
Substitute ___ for y in: $\frac{1}{2}y = ?$ (3rd scale)
so $\frac{1}{2}($___$) =$ ___ $= ?$