

I am thinking of a number.  
I multiply it by 3.  
I then subtract 1.  
The answer I get is 14.



What number was I thinking of?

What expression would you write?  
What equation would you write?

I can magically read your mind  
Write down any number.  
Add to it the number that comes after it.  
Add 9  
Divide by 2  
Subtract the number you began with.

Your number was 5!

How does this trick work?

Write a set of equations to convince someone how this works.



$$318 = 318$$

$$120 = 60 \times 2$$

$$1 = \frac{3}{4} + \frac{2}{4}$$

$$\frac{1}{2} = \frac{1}{4} + \frac{1}{4}$$

$$345 + 71 = 70 + 344$$

$$1210 - 35 = 1310 - 45$$

$$0.4 \times 15 = 0.2 \times 30$$

## SOLVING EQUATIONS

$$w + 7 = 9$$

$$x - 8 = 10$$

$$2y = 8$$

$$\frac{z}{5} = 3$$

$$3x - 4 = 11$$

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$$3x - 5 = 16$$

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$$\frac{x}{2} + 2 = 10$$

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Solving two step linear equations

$$4y + 1 = 21$$

$$2p - \frac{1}{4} = 13.45$$

$$3\frac{1}{3}x - 5 = 16\frac{1}{5}$$

$$\text{Solve } 4x + 3 = 23.$$

$$\text{Solve } \frac{y - 4}{5} = 3.$$

$$\text{Solve } 5(x + 3) = 25.$$

$$\text{Solve } 3(2x - 7) = 15.$$

Solving linear equations

$$4x + 7 = 17$$

$$5m - 3 = 17$$

$$\frac{m}{7} - 3 = 5$$

$$\frac{k + 1}{2} = 3$$

$$\frac{w}{3} - 5 = 2$$

Solve  $2x + 3 = 6x - 5$ .