

- 1) a) Tick the representation which matches the equation $2x + 3 = 9$.



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- b) Write down an equation to match each of the other representations.

- 2) Compare the value of x and y in these equations using $<$, $>$ and $=$. Draw representations to show your working.

$3x + 4 = 16$ $2y + 4 = 16$ x y

$4x - 5 = 15$ $3y - 5 = 10$ x y

$2(x + 4) = 28$ $3(y + 4) = 27$ x y

- 3) Create three equations where $x = 3$, using the numbers and expressions below. Draw representations of your equations.

x	$2x$	5	2
1	4	8	10

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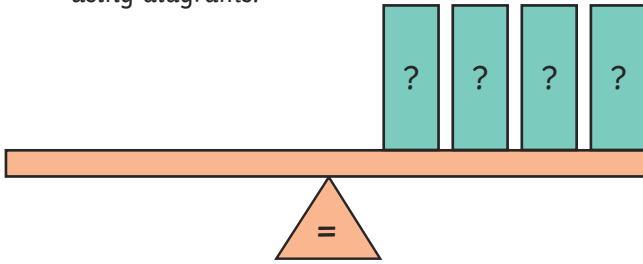
- 1) Is the value of the letter x the same in both equations? Prove your answer using diagrams and explain your reasoning.



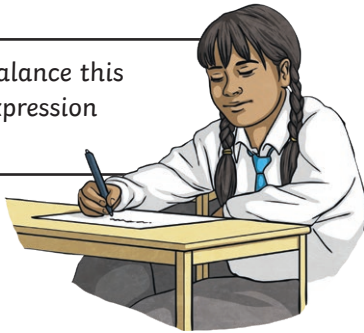
$$3(x + 4) = 30$$

$$3x + 4 = 22$$

- 2) a) Do you agree with Nishi? Explain your reasoning using diagrams.



If $x = 4$, then I can balance this equation using the expression $10 + 4 + 3$.



- b) Write three different expressions that will balance this equation.

- 3) a) Do the operations correctly show how to use inverse operations to find the value of x ? Explain your reasoning.

$$7(x - 2) = 42$$

$$(x - 2) = 6$$

$$x = 4$$

$$\boxed{\div 7}$$

$$\boxed{- 2}$$

- b) Complete the inverse operations to find the value of x .

$$8(x + 3) = 96$$

$$(x + 3) = 12$$

$$x = \boxed{}$$

$$\boxed{}$$

$$\boxed{}$$

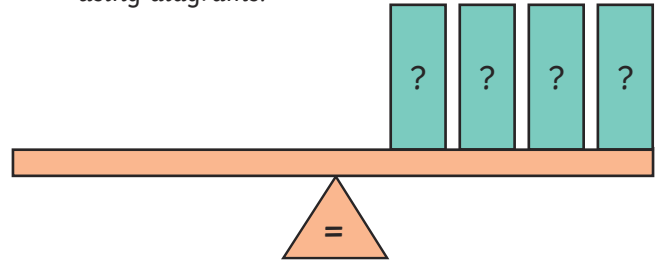
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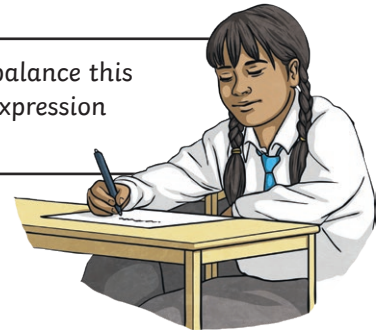
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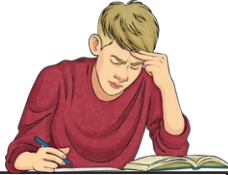
- 1) There are six different possible values for x in this equation. Can you find them all and write the six different equations? Show your working out. One has been done for you:



$$\square x + 4 = 34 \quad 15x + 4 = 34 \text{ where } x = 2$$

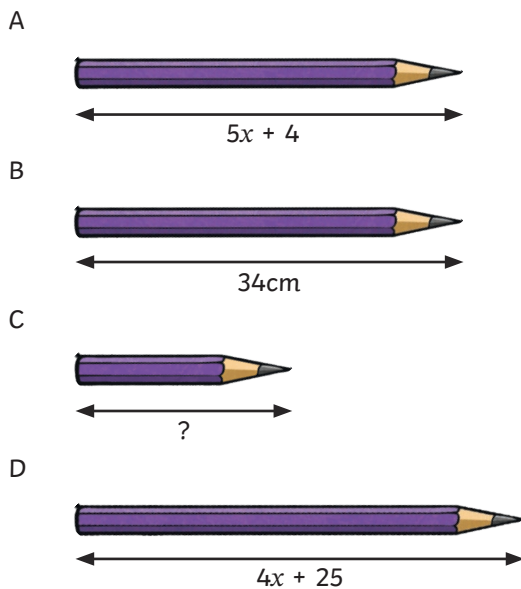
- 2) What could the missing digits in this equation be? Find more than one possible answer. For example: If $x = 17$, then $3x + 13 = 64$

$$3x + \square = \square$$



The value of x in my equation is a two-digit prime number less than 30. The answer to the equation is a square number.

- 3) The total length of all four pencils is 139cm. Pencils A and B are the same length. Find the length of pencil C.



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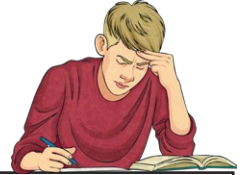
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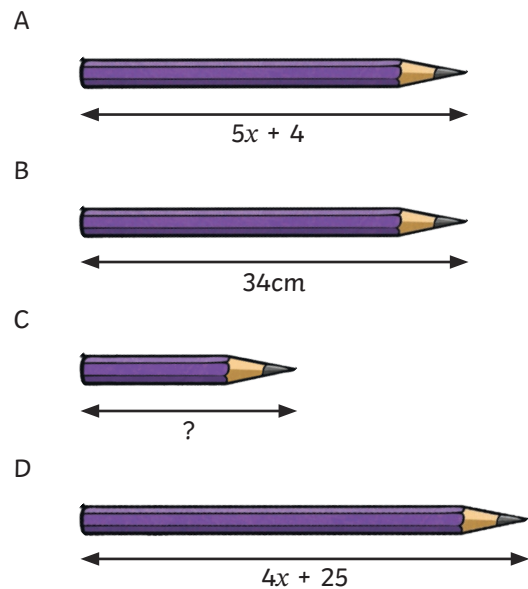
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