

Developing Algebraic Thinking in the Elementary School Years

PROFESSIONAL DEVELOPMENT
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Take or Tally

Player 1

Player 2

$13 - \underline{\quad} = \underline{\quad}$

$13 - \underline{\quad} = \underline{\quad}$

$12 - \underline{\quad} = \underline{\quad}$

$12 - \underline{\quad} = \underline{\quad}$

$11 - \underline{\quad} = \underline{\quad}$

$11 - \underline{\quad} = \underline{\quad}$

$10 - \underline{\quad} = \underline{\quad}$

$10 - \underline{\quad} = \underline{\quad}$

$9 - \underline{\quad} = \underline{\quad}$

$9 - \underline{\quad} = \underline{\quad}$

$8 - \underline{\quad} = \underline{\quad}$

$8 - \underline{\quad} = \underline{\quad}$

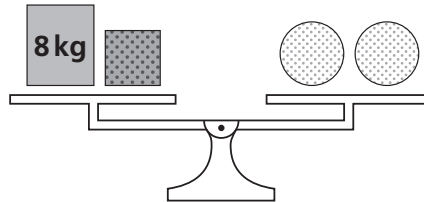
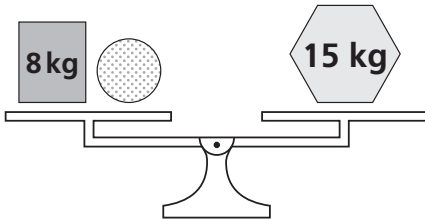
Tally

Tally

Cube A: 1, 2, 3, 1, 2, 3

Cube B: 7, 8, 9, 10, 11, 12

Same shapes weigh the same.



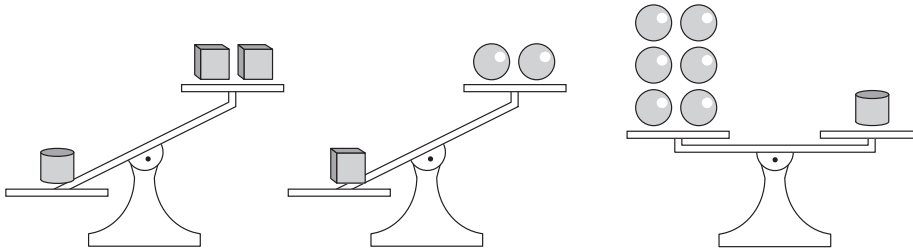
$$\text{Dotted Circle} = \underline{\quad} \text{ kg}$$


$$\text{Dotted Square} = \underline{\quad} \text{ kg}$$





17

Each shape is a whole number of kilograms.



 = 12 kg

a.  = ____ kg

b.  = ____ kg

Thinking Mathematically and Problem Solving

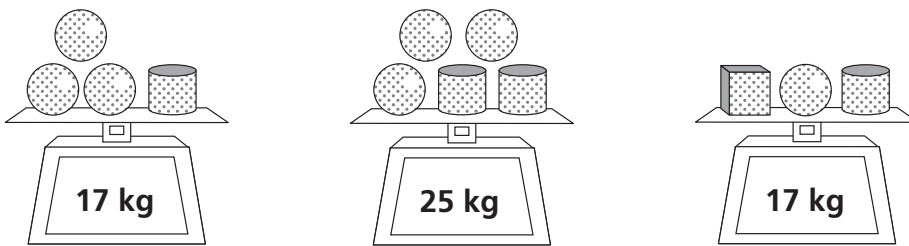
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Prickly Problems


Purple Tank


17



Same shapes are the same number of kilograms.

a.  = ____ kg

b.  = ____ kg

c.  = ____ kg

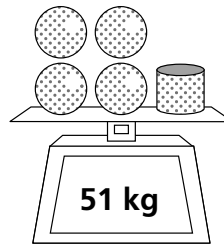
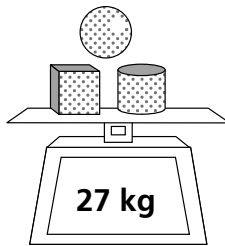
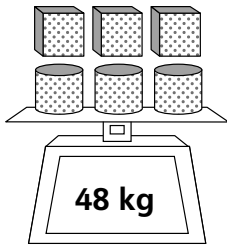
Thinking Mathematically and Problem Solving

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


Green Tank

5



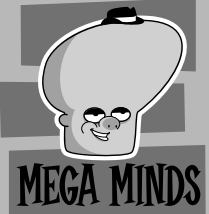
Same shapes are the same number of kilograms.

- a.  = ____ kg
- b.  = ____ kg
- c.  = ____ kg

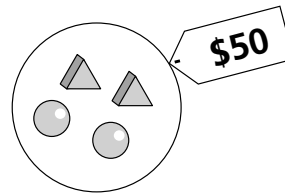
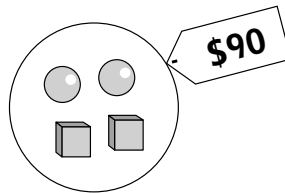
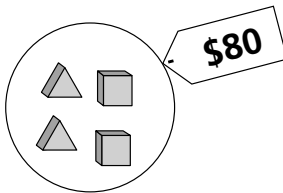
Thinking Mathematically and Problem Solving

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Red Tank



17



Same shapes are the same price.

- a.  \$ _____
- b.  \$ _____
- c.  \$ _____

Thinking Mathematically and Problem Solving

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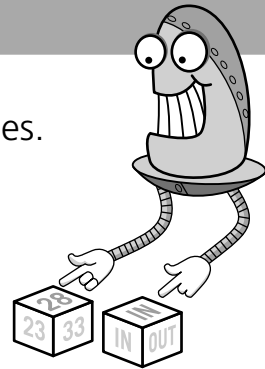
Blue Tank



Writing Input and Output Numbers

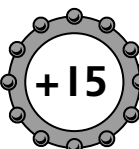
Write these numbers and words on the faces of two cubes.

Cube 1 –	23	28	33	37	44	56
Cube 2 –	IN	IN	IN	OUT	OUT	OUT

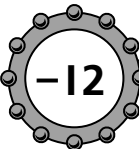


If you rolled this, you would write 28 in the top row.

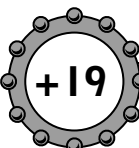
Roll both cubes. Write the number from the roll of Cube 1 in the row that matches the roll of Cube 2. Then use the rule to figure out and write the number that should be in the other row.

a.  IN

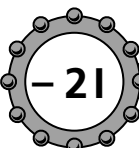
OUT

b.  IN

OUT

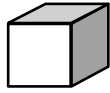
c.  IN

OUT

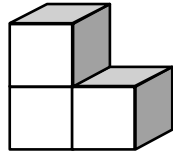
d.  IN

OUT

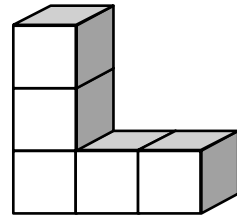




Building 1



Building 2



Building 3



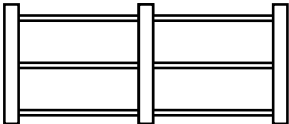
What does the 8th building look like?

How high is the building with 10 blocks along the base?

How many blocks are there altogether in that building?

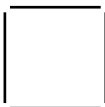


Which building has a total of ____ blocks?

Relationship patterns

	Number of posts	Number of rails
	1	0
	2	
	3	
	4	

How many rails will be required for 12 posts?

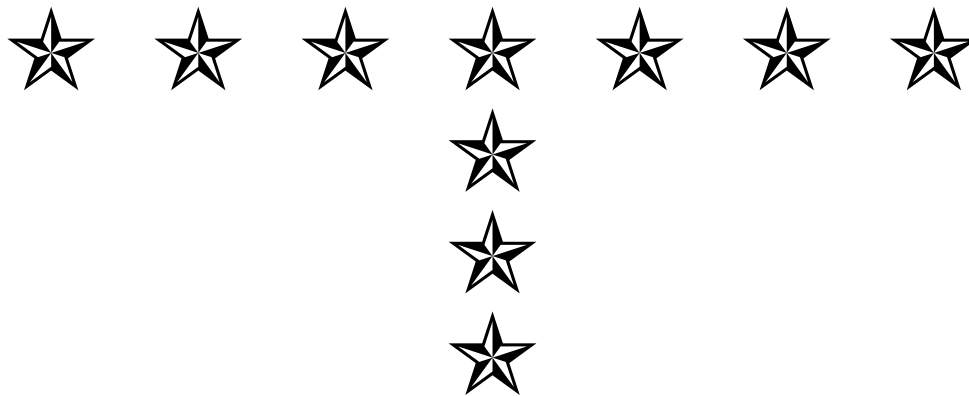
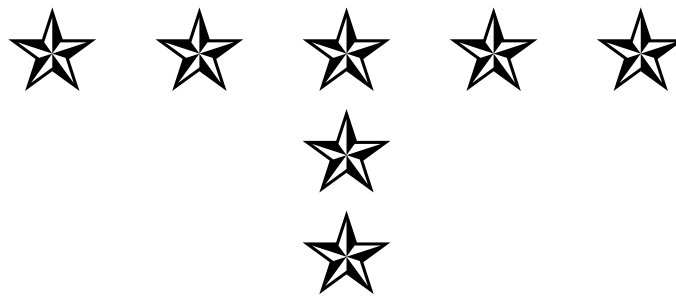
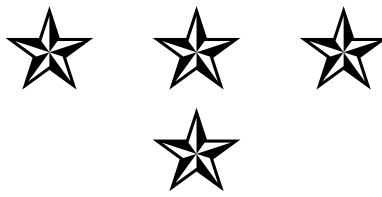
How many rails will be required for 50 posts?

	Number of squares	Number of matches
	1	4
	2	7
	3	
	4	

How many matches will be required to make 10 squares?

How many matches will be required to make 50 squares?

Write in words how to work out the number of matches required to make any number of squares.



How many stars are needed for the 10th “T” shape?