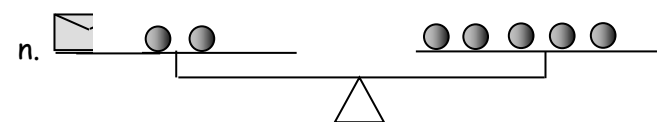
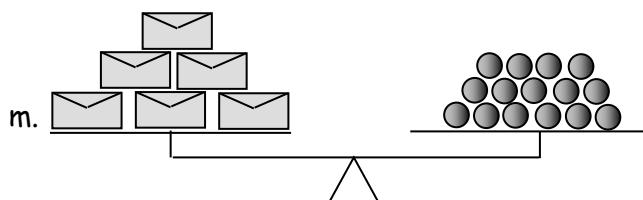
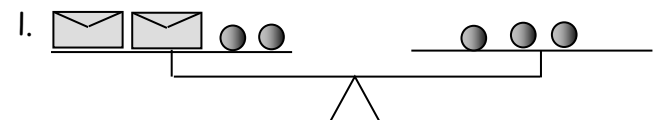
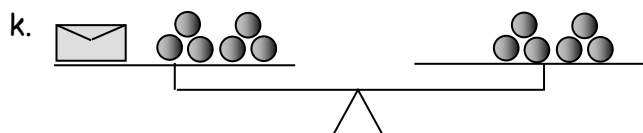
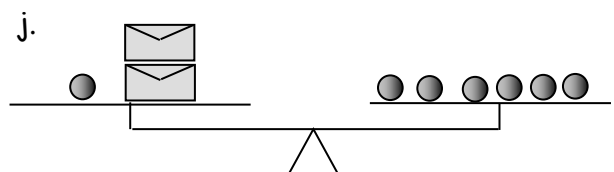
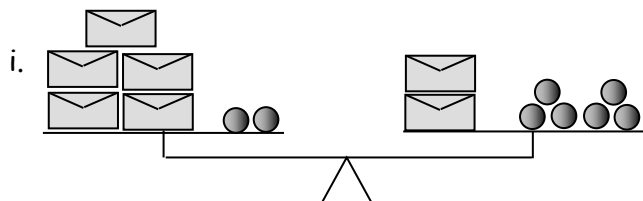
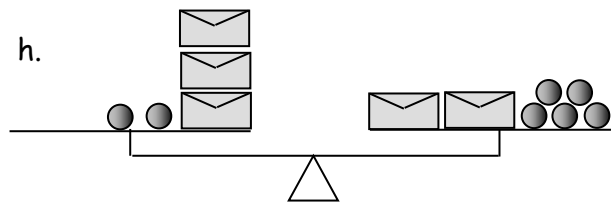
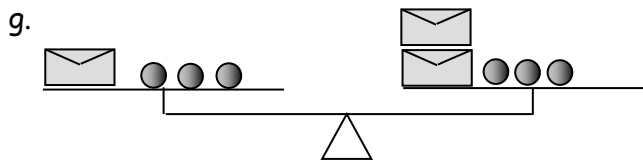
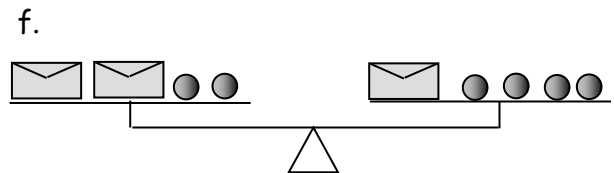
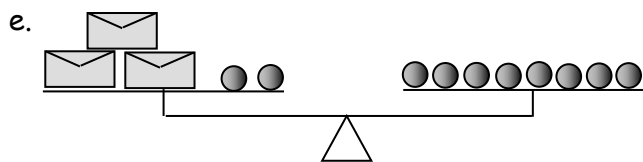
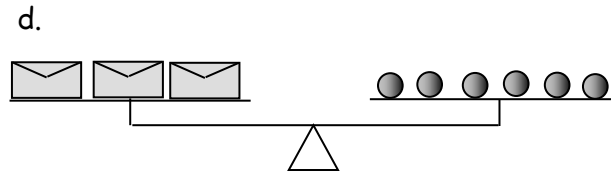
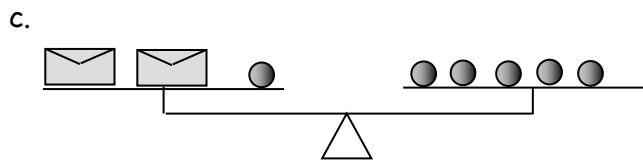
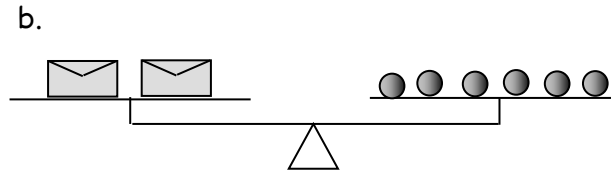
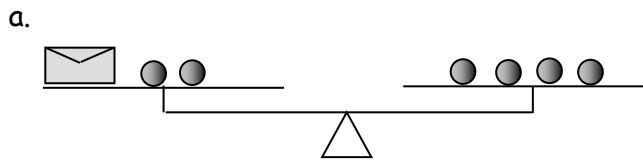


# Keeping the Balance 1

For each problem, assume that all envelopes contain the same number of coins. For example, in question (f) each of the 3 envelopes contains the same number of coins. The weight of the envelopes is negligible.

1. For each balance below:
  - i. Write an algebraic equation to model the problem.
  - ii. Use algebra to find the number of coins in each envelope.



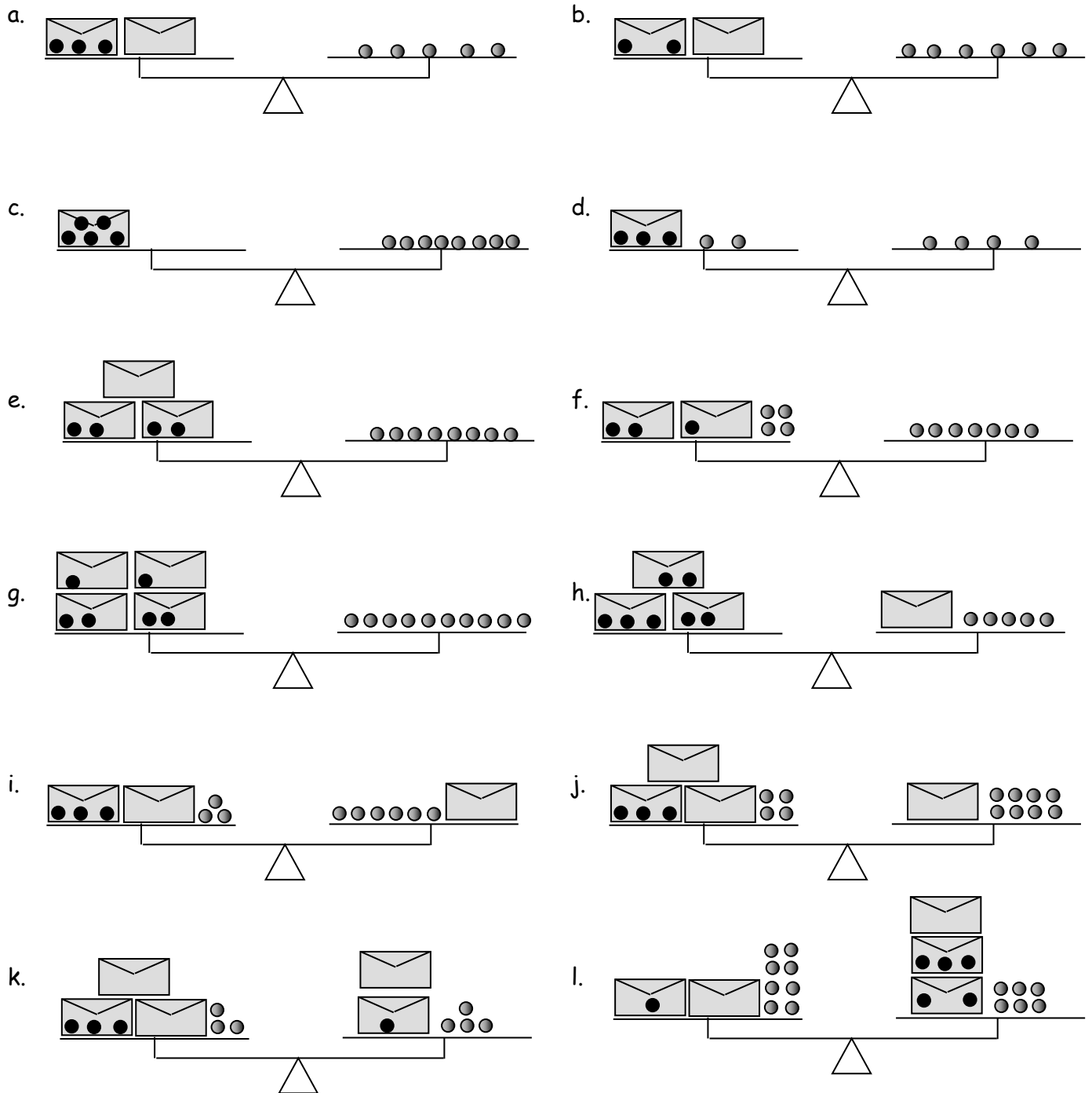
# Keeping the Balance 2

1. For a given question, all envelopes contain the same number of coins. EXCEPT, some coins are missing. These are shown as black circles inside the envelope.

For example, in question (a), two envelopes, with 3 missing coins, balances 5 coins. How many coins in each envelope originally?

Find how many coins are in each envelope, if there are no missing coins.

Assume that the weight of the envelopes is negligible.



Answers: Let  $E$  = the number of coins in an envelope.

- a.  $E = 4$    b.  $E = 4$    c.  $E = 13$    d.  $E = 5$    e.  $E = 4$    f.  $E = 3$    g.  $E = 4$   
 h.  $E = 6$    i.  $E = 6$    j.  $E = 3.5$    k.  $E = 3$    l.  $E = 6$

# Keeping the Balance 3

An envelope contains either a cheque (+) or a bill (-). For example, an envelope might contain a bill for \$5.50 (or -5.5). If there are three such envelopes in a question, they all contain bills for \$5.50.

Find what amount is in each envelope.

a.   = \$5

b.    + \$5 = \$23

a.   = \$5

b.    + \$5 = \$23

a.   = \$5

b.    + \$5 = \$23

a.   = \$5

b.    + \$5 = \$23

a.   = \$5

b.    + \$5 = \$23

a.   = \$5

b.    + \$5 = \$23

a.   = \$5

b.    + \$5 = \$23

a.   = \$5

b.    + \$5 = \$23

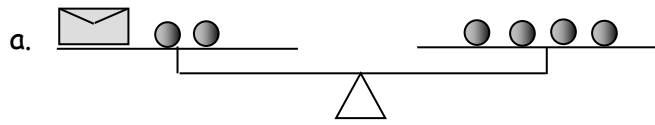
# Keeping the Balance - Solving Equations

For each question:

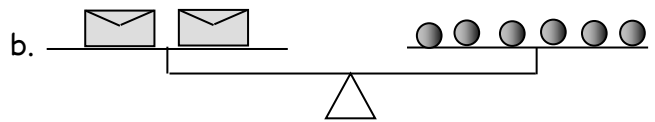
Let  $N$  = the number of coins in an envelope.

Write the algebraic equation represented by the balance diagram.

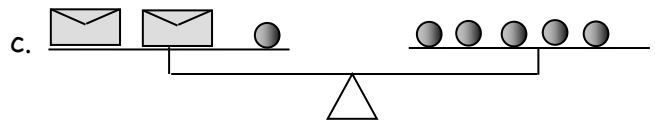
Solve the equation, using the diagram as a guide.



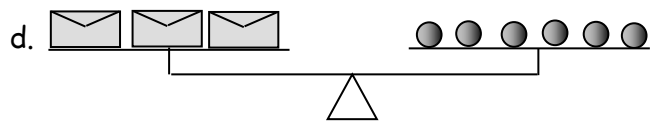
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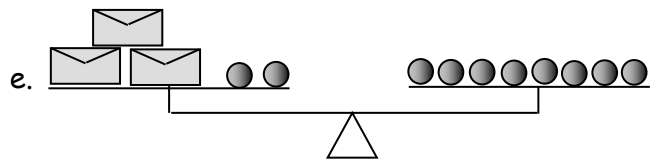
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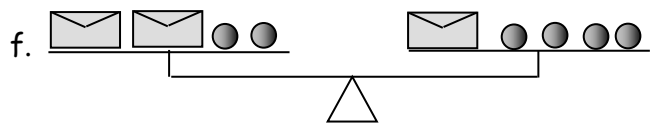
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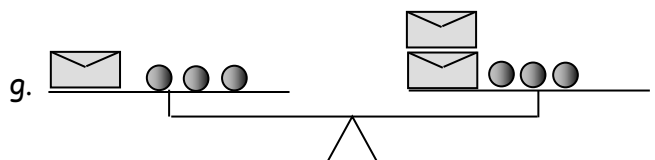
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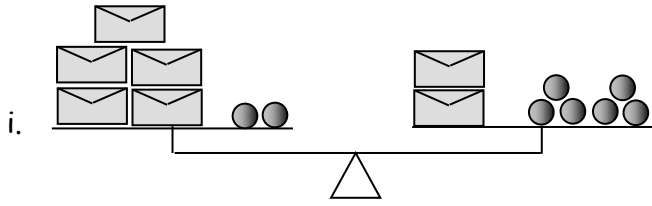


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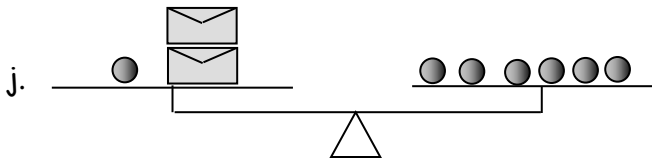


h.

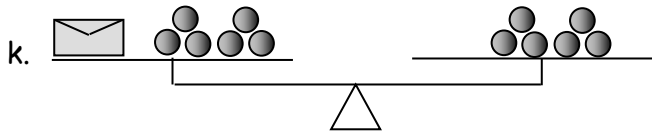
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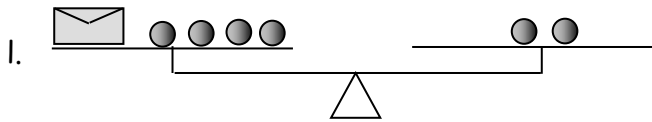
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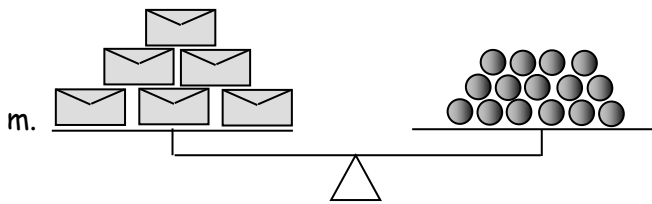
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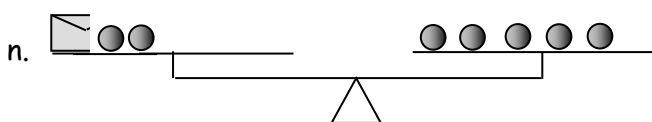
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