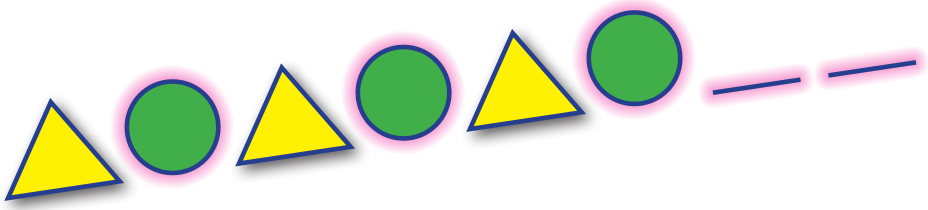
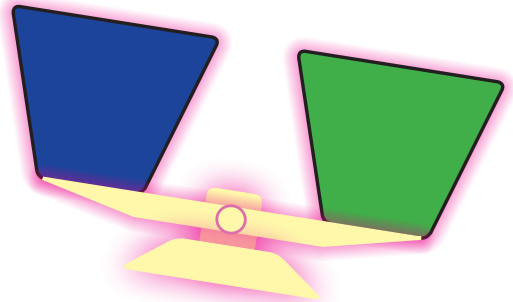
# Sense of Number
# Visual Algebra Policy





## Graphic Design by Dave Godfrey
## Compiled by the Sense of Number Maths Team

**For sole use within Sense of Number Primary School.**

**'A picture is worth 1000 words!'**
**www.senseofnumber.co.uk**

# Guide to using a Visual Algebra Policy

The Sense of Number Visual Algebra Policy provides a visual interpretation of the progression required across the Primary school to help children meet the objectives found within Domain 10: Algebra in the new National Curriculum.

A school branded VAP is created by Dave Godfrey for individual schools when the school logo and school name are added to the footer of each slide.

Typical uses:

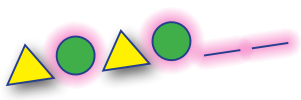
Classroom: The slides are printed out (e.g. A4) and the appropriate slides are displayed within each classroom for continual reference or on a working wall.

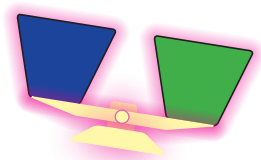
Teacher Reference: The slides are printed out (e.g. 9 slides per A4 page) and inserted in the teacher's planning folder.

Parents: The slides are used to communicate to parents the school's approach to developing and teaching algebraic thinking.

Website: Selected slides from the VAP are inserted onto a school's maths webpages. (Please note: the VAP should not be made available for download.)

# Sections in the Visual Algebra Policy







| Pages | Code | Years | Theme |
|---|---|---|---|
| 9-14 | AA | FS-Y4 | Patterns and Sequences |
| 15-23 | AB | Y1-Y6 | Counting Sequences |
| 24-31 | AC | Y1-Y6 | Number Shapes (patterns & sequences) |
| 32-37 | AD | Y1-Y6 | Abacus (patterns & sequences) |
| 38-56 | AE | Y1-Y6 | Function Machines |
| 57-69 | AF | Y4-Y6 | Graphing Sequences |
| 70-73 | AG | Y1-Y4 | Balancing Stacks |
| 74-92 | AH | Y1-Y6 | Balancing Equations |
| 93-98 | AI | Y4-Y6 | Formulae |
| 99-103 | AJ | Y5-Y6 | Algebra Word Problems |

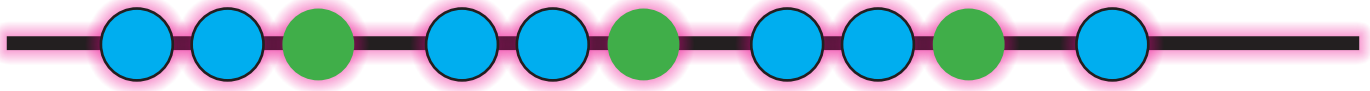
# Year Groups:

# Specific Slide Locations

| Section | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
|---|---|---|---|---|---|---|
| A: Patterns and Sequences | 9-11 | 11-15 | | | | |
| B: Counting Sequences | 15-16 | 17-18 | | 19-21 | 20-23 | |
| C: Number Shapes (P&S) | 24 | 25 | 26,27 | | 28-31 | |
| D: Abacus (P&S) | 32 | | 33-35 | | 36,37 | |
| E: Function Machines | 38 | 39-43 | 44-47 | 48-51 | 52 | 53-56 |
| F: Graphing Sequences | | | | 57,58 | 59-63 | 61-69 |
| G: Balancing Stacks | 70 | 70,71 | 72 | 73 | | |
| H: Balancing Equations | 74-76 | 77,78 | 79 | 79,80 | 81-83 | 84-92 |
| I: Formulae | | | | 93-95 | 96-98 | |
| J: Algebra Word Problems | | | | | 99-103 | |

# Seeing a Sequence

## A: Count



## B: Pattern

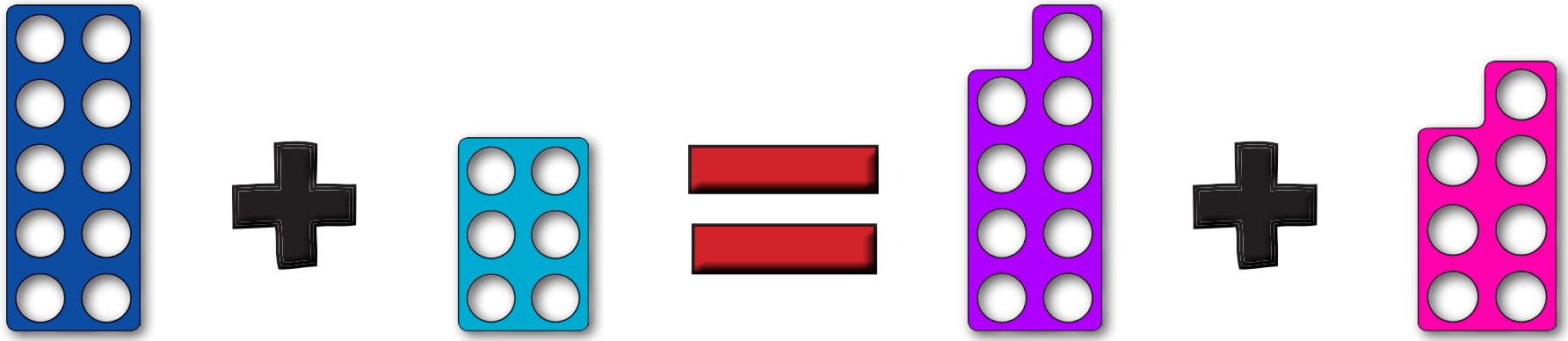
BBG BBG BBG B

## C: Terms of Sequence

labeling the position of the greens

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| term | | | 1 | | | 2 | | | 3 | | | |
| count | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| y | | | 3 | | | 6 | | | 9 | | | |

# Equals Sign is a Balance



"The equals sign is a balance"

# Algebraic Notation

$d + d$

$d \times 2$

$2d$

$d \div 2$

$\frac{d}{2}$

$d - 2$

$d - 2$

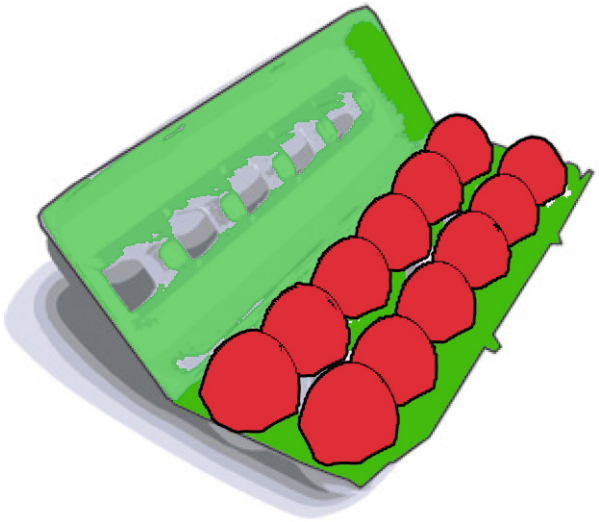
$2 - d$

$2 - d$

$d \times d$

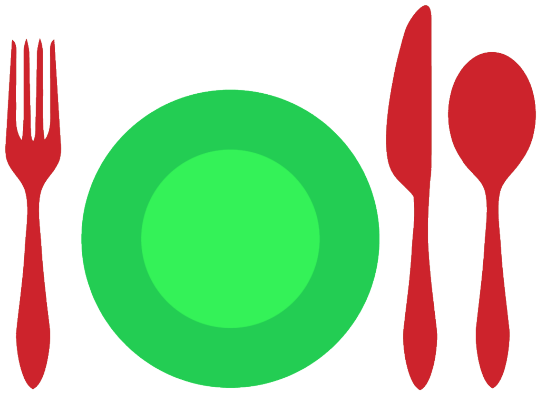
$d^2$

# Letters in Algebra



$e = 12b$

| | | | | | |
|---|---|---|---|---|---|
| Number of Eggs | $e$ | 12 | 24 | 36 | $12b$ |
| Number of Full Boxes | $b$ | 1 | 2 | 3 | $\frac{e}{12}$ |



$c = 3p$

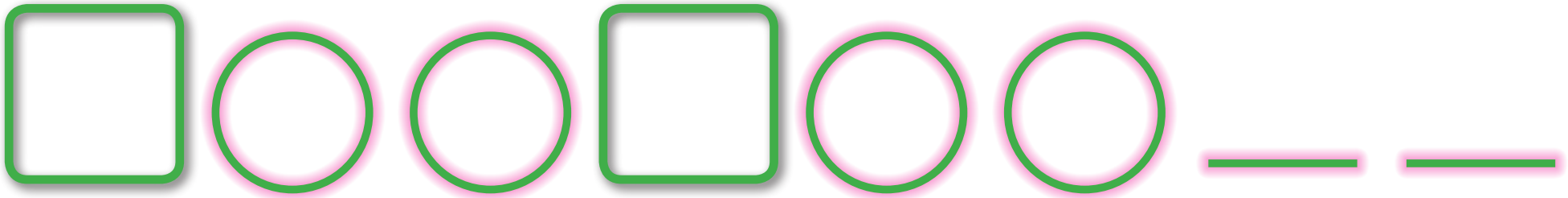
| | | | | | |
|---|---|---|---|---|---|
| Number of pieces of cutlery | $c$ | 3 | 6 | 9 | $3p$ |
| Number of place settings | $p$ | 1 | 2 | 3 | $\frac{c}{3}$ |

## In Algebra letters are variables!

# AA: Patterns & Sequences

FS/1

What are the missing terms?



1, 2, 3, __, 5, __, 7, 8,

10, 20, __, 40, 50, __,

# AA: Patterns & Sequences

1

## What are the missing terms?

2, 4, 6, __, __, 12, 14,

5, 10, 15, 20, __, __, 45,

22, 20, __, 18, 16, __,

30, 40, __, 60, 70, __,

# AA: Patterns & Sequences

## 2a

What are the missing terms?

1, __, __, 4, __, __, 7, __,

37, 39, __, 43, 45, __,

180, 170, __, 150, 140, __,

# AA: Patterns & Sequences

## 2b

### What are the missing terms?

1, 4, __, __, 13, 16, __, __,

5, 9, __, 17, __, 25,

36, 42, __, 54, 60, __,

# AA: Patterns & Sequences

3

## What are the missing terms?

1, 4, 9, __, __, 36, 49,

3, 6, 10, 15, __, __,

1, 5, 9, 13, __, __, __, __,

# AA: Patterns & Sequences

3/4

## What are the missing terms?

12, 8, 4, 0, ___, ___, -12,

5, 3, 1, ___, ___, -5, -7,

32, 22, 12, 2, ___, ___,

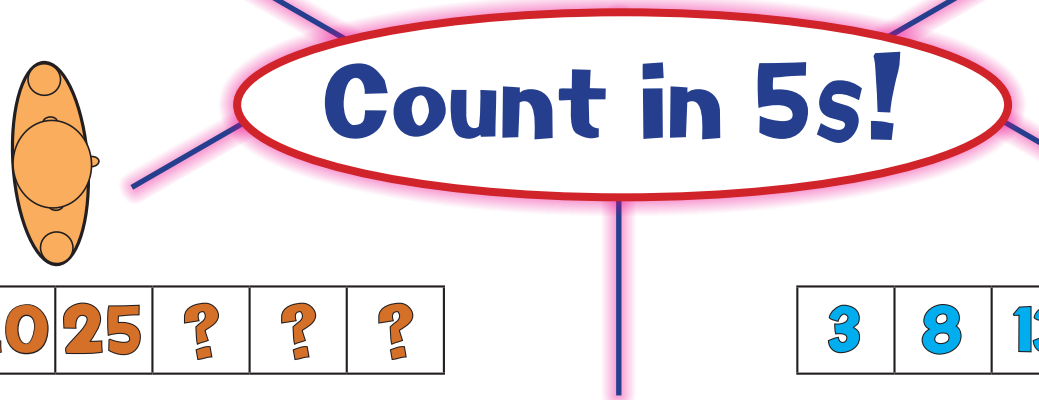
# AB: Counting Sequences

1/2a

"Who is going to say 30?"

| 1 | 6 | 11 | 16 | 21 | ? | ? | ? |
|---|---|---|---|---|---|---|---|

| 2 | 7 | 12 | 17 | 22 | ? | ? | ? |
|---|---|---|---|---|---|---|---|




| 5 | 10 | 15 | 20 | 25 | ? | ? | ? |
|---|---|---|---|---|---|---|---|

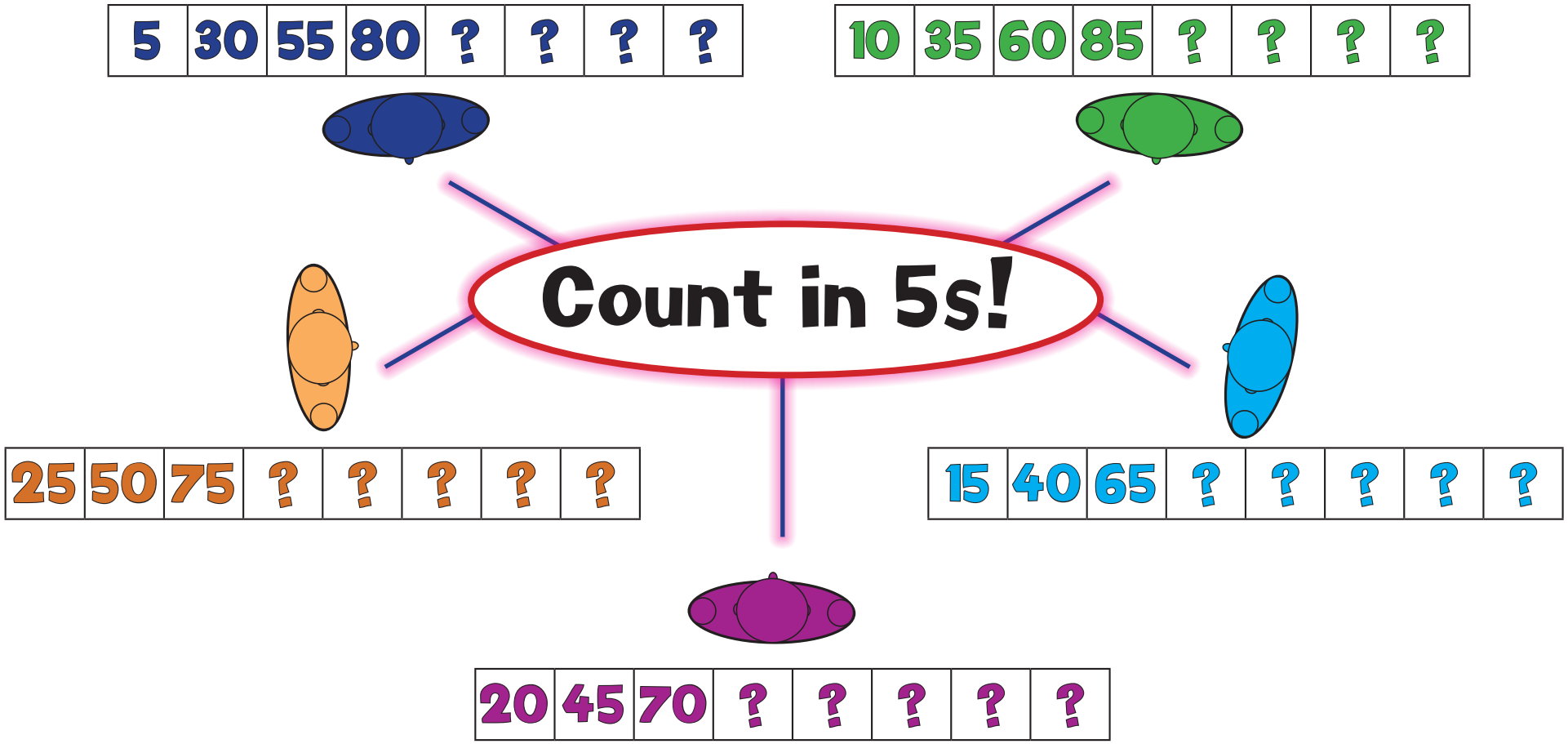
| 3 | 8 | 13 | 18 | 23 | ? | ? | ? |
|---|---|---|---|---|---|---|---|

| 4 | 9 | 14 | 19 | 24 | ? | ? | ? |
|---|---|---|---|---|---|---|---|

# AB: Counting Sequences

1/2b

"Who is going to say 100?"

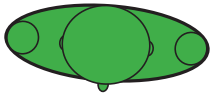


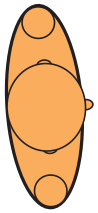
# AB: Counting Sequences

2/3a

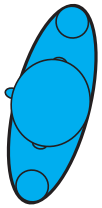
"Who is going to say 35?"

| 1 | 5 | 9 | 13 | 17 | 21 | 25 | ? |
|---|---|---|---|---|---|---|---|



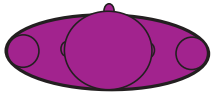


Multiples of 5!



| 4 | 8 | 12 | 16 | 20 | 24 | 32 | ? |
|---|---|---|---|---|---|---|---|

| 2 | 6 | 10 | 14 | 18 | 22 | 30 | ? |
|---|---|---|---|---|---|---|---|



| 3 | 7 | 11 | 15 | 17 | 19 | 31 | ? |
|---|---|---|---|---|---|---|---|

# AB: Counting Sequences

2/3b

"Who is going to say 39?"

| 1 | 5 | 9 | 13 | 17 | 21 | ? | ? |
|---|---|---|---|---|---|---|---|

## Count in 4s!

| 4 | 8 | 12 | 16 | 20 | 24 | ? | ? |
|---|---|---|---|---|---|---|---|

Counting in 4s

| 2 | 6 | 10 | 14 | 18 | 22 | ? | ? |
|---|---|---|---|---|---|---|---|

2 less than counting in 4s

| 3 | 7 | 11 | 15 | 17 | 19 | ? | ? |
|---|---|---|---|---|---|---|---|

1 less than counting in 4s

# AB: Counting Sequences

3/4

"Who is going to say 60?"

| 1 | 5 | 9 | 13 | 17 | 21 | ? | ? |
|---|---|---|---|---|---|---|---|

## Multiples of 6!

| 4 | 8 | 12 | 16 | 20 | 24 | ? | ? |
|---|---|---|---|---|---|---|---|

| 2 | 6 | 10 | 14 | 18 | 22 | ? | ? |
|---|---|---|---|---|---|---|---|

| 3 | 7 | 11 | 15 | 17 | 19 | ? | ? |
|---|---|---|---|---|---|---|---|

# AB: Counting Sequences

4/5a

"Who is going to say 70?"

| 1 | 5 | 9 | 13 | 17 | 21 | ? | ? |
|---|---|---|---|---|---|---|---|

## Multiples of 7!

| 4 | 8 | 12 | 16 | 20 | 24 | 28 | ? |
|---|---|---|---|---|---|---|---|

| 2 | 6 | 10 | 14 | 18 | 22 | ? | ? |
|---|---|---|---|---|---|---|---|

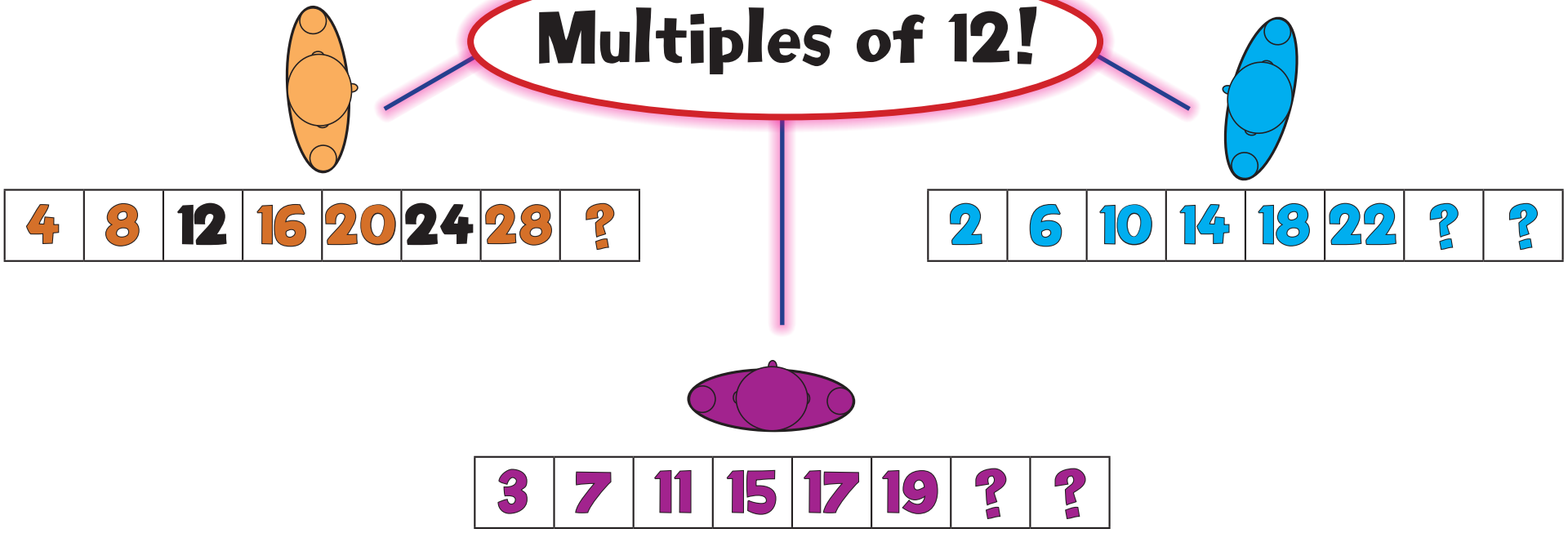
| 3 | 7 | 11 | 15 | 17 | 19 | ? | ? |
|---|---|---|---|---|---|---|---|

# AB: Counting Sequences

4/5b

"Who is going to say 144?"

| 1 | 5 | 9 | 13 | 17 | 21 | ? | ? |
|---|---|---|---|---|---|---|---|

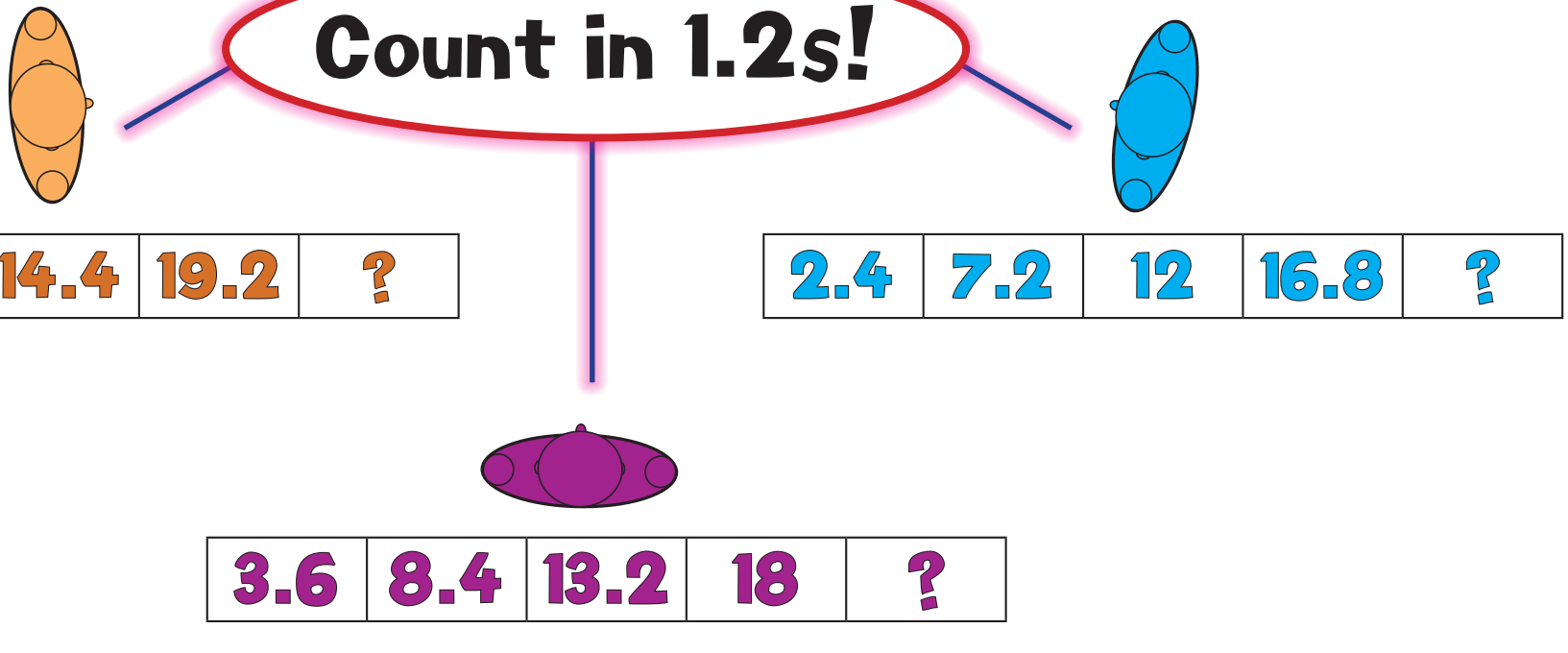


# AB: Counting Sequences

5/6

"Who is going to say 24?"

| 1.2 | 6 | 10.8 | 15.6 | ? |
|---|---|---|---|---|




| 4.8 | 9.6 | 14.4 | 19.2 | ? |
|---|---|---|---|---|

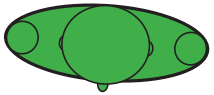
| 2.4 | 7.2 | 12 | 16.8 | ? |
|---|---|---|---|---|

| 3.6 | 8.4 | 13.2 | 18 | ? |
|---|---|---|---|---|

# AB: $y = 4x - ?$

5/6b

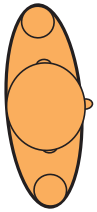
"Who is going to say 39?"



$y = 4x - 3$

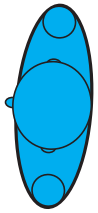
| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| y | 1 | 5 | 9 | 13 | 17 | 21 | ? | ? |

## Count in 4s!



$y = 4x$

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| y | 4 | 8 | 12 | 16 | 20 | 24 | ? | ? |

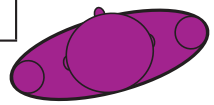


$y = 4x - 2$

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| y | 2 | 6 | 10 | 14 | 18 | 22 | ? | ? |

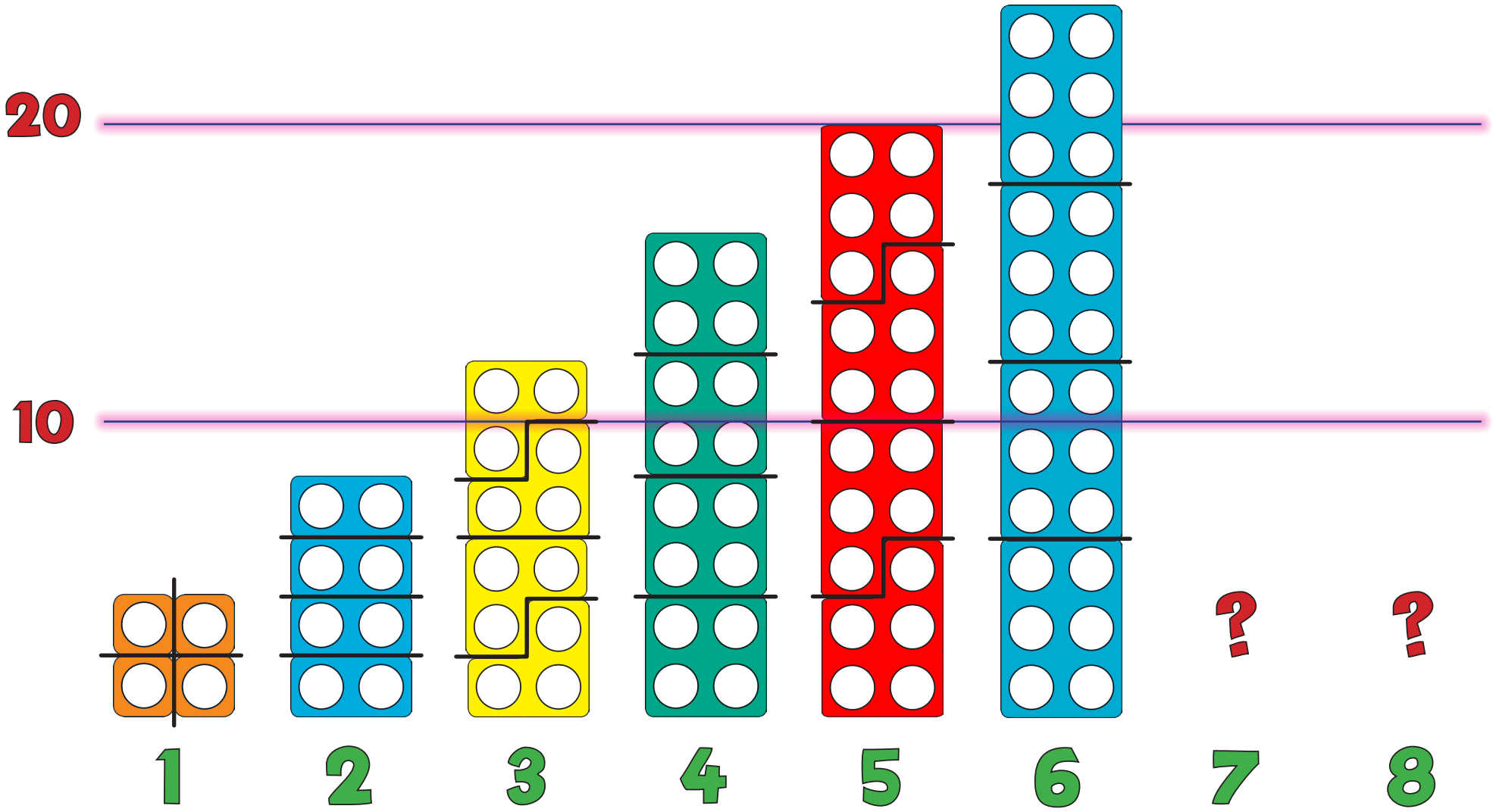
$y = 4x - 1$

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| y | 3 | 7 | 11 | 15 | 17 | 19 | ? | ? |



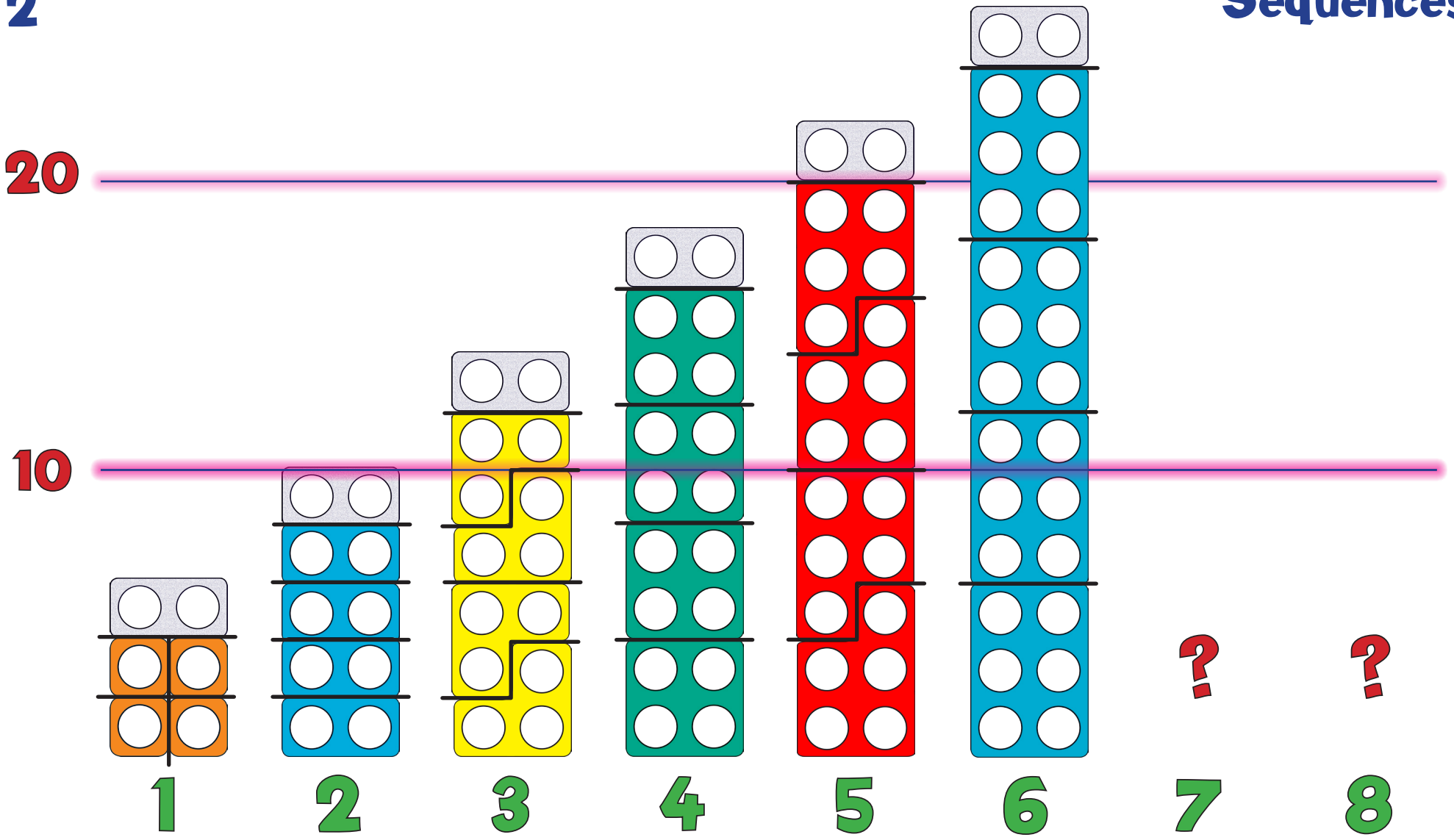
# AC: Number Shapes

## 1 Sequences



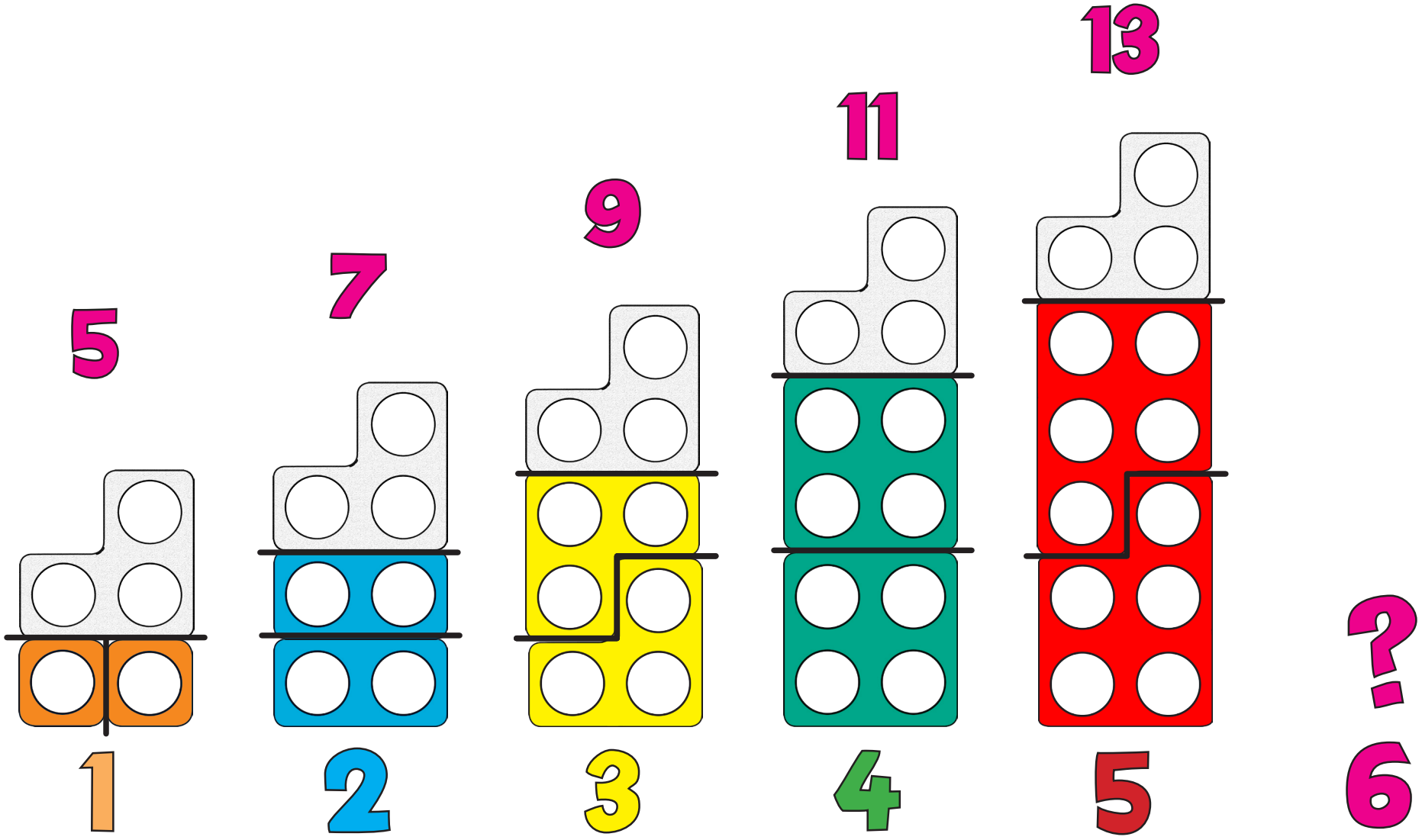
# AC: Number Shapes

## 2 Sequences



# AC: Number Shapes

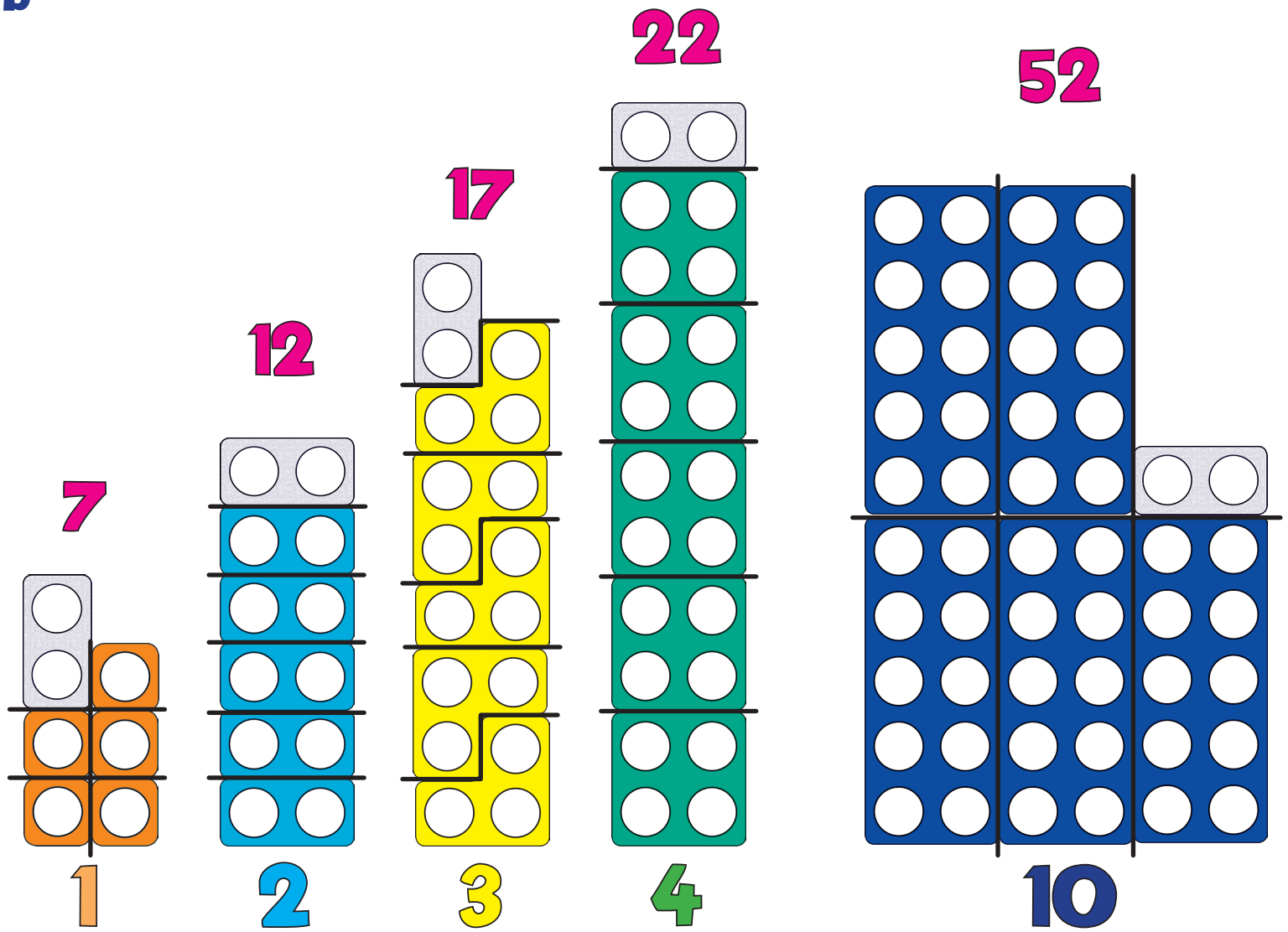
## 3a Sequences



# AC: Number Shapes

## 3b

## Sequences

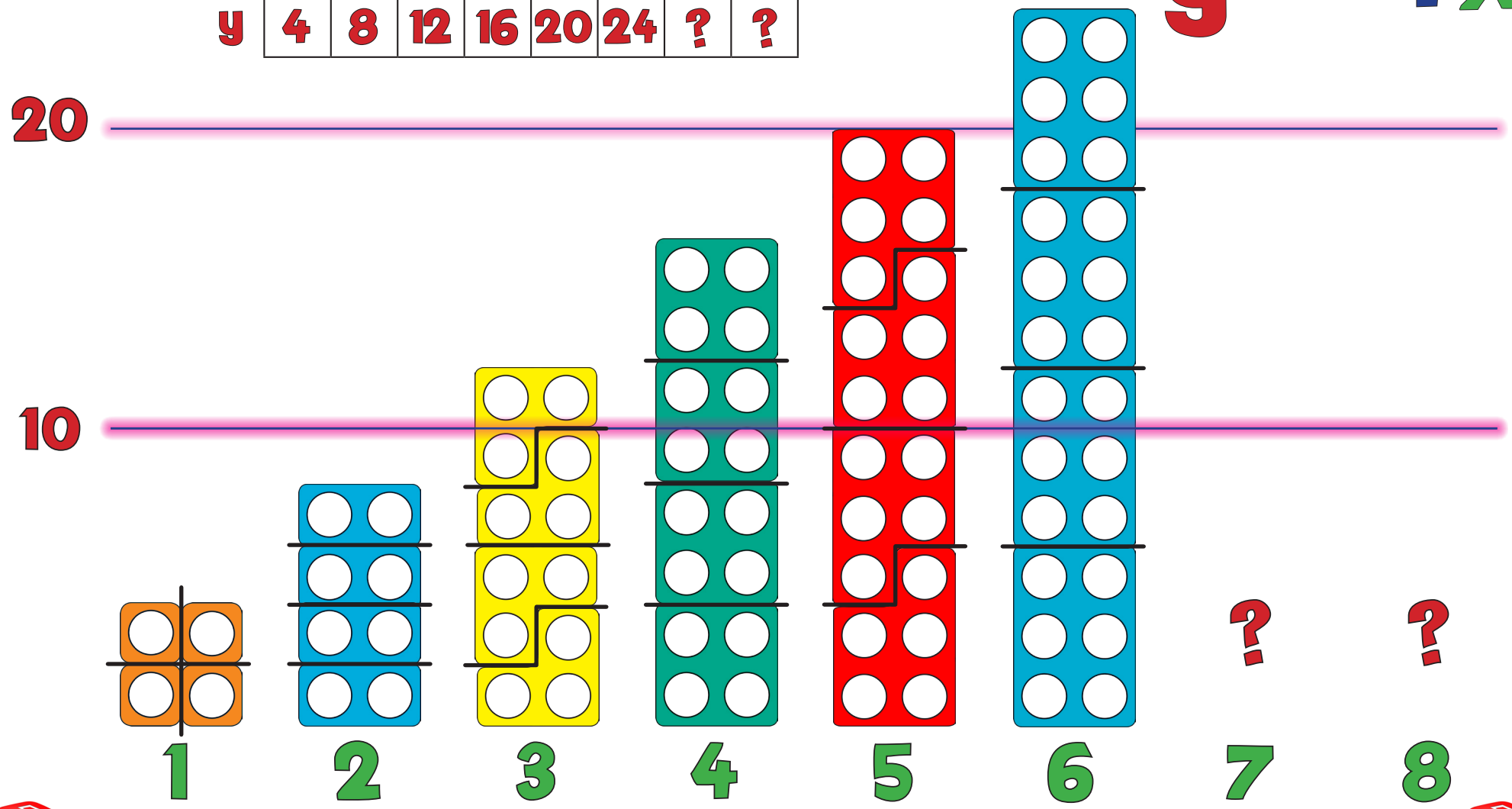


# AC: Number Shapes

## 5/6a

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| y | 4 | 8 | 12 | 16 | 20 | 24 | ? | ? |

$y = 4x$

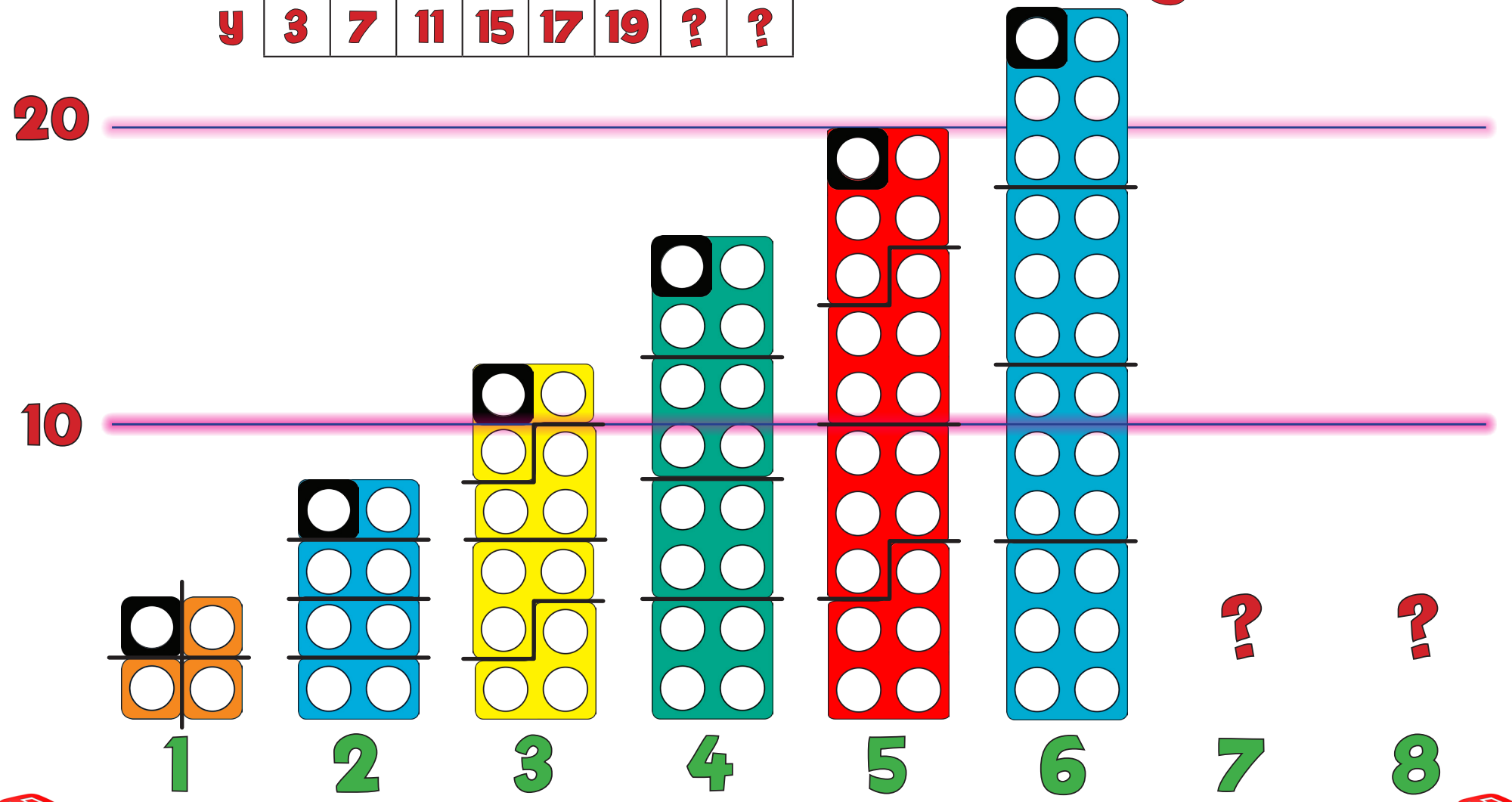


# AC: Number Shapes

5/6b

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| y | 3 | 7 | 11 | 15 | 17 | 19 | ? | ? |

$y = 4x - 1$

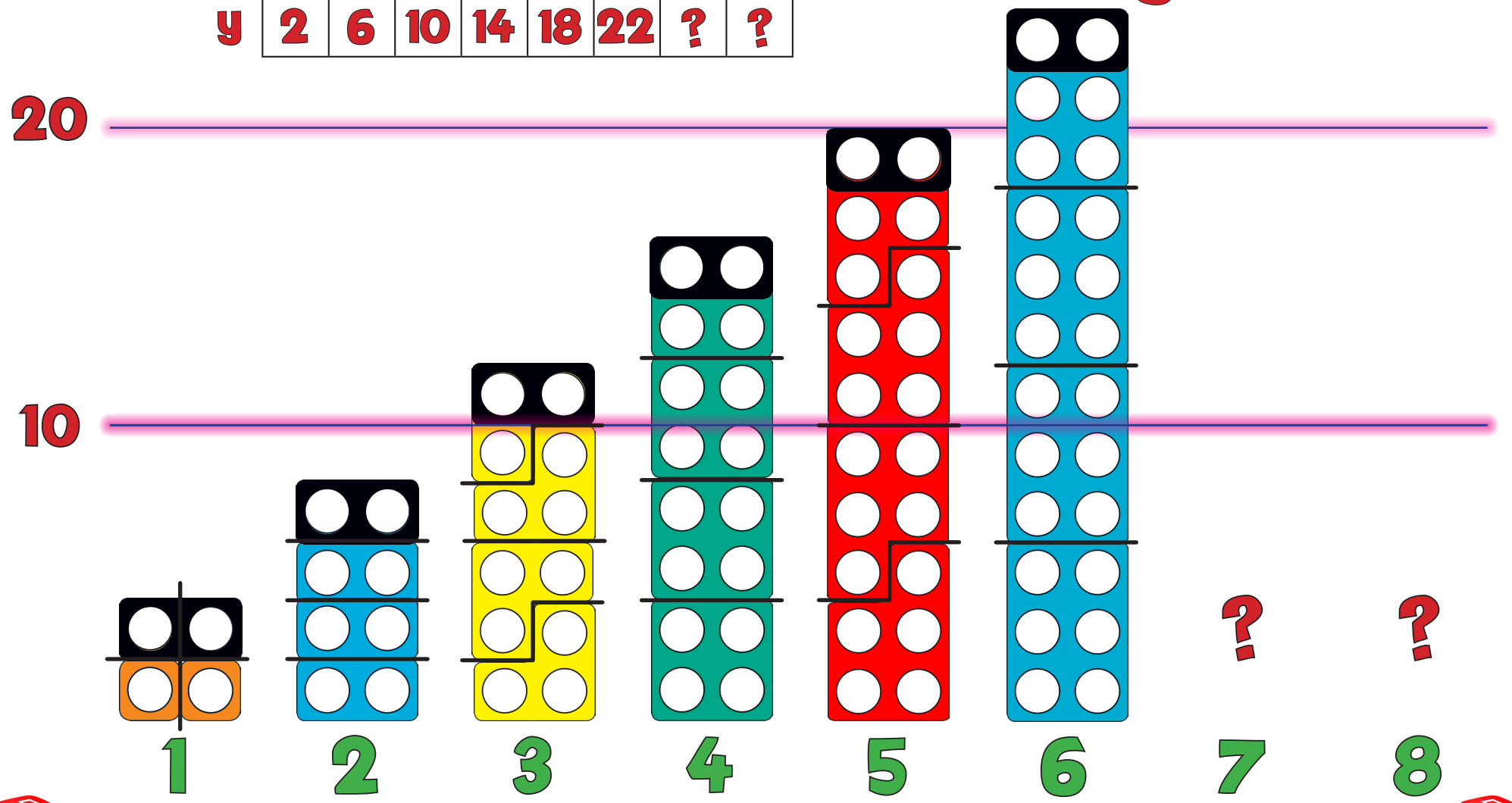


# AC: Number Shapes

5/6c

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| y | 2 | 6 | 10 | 14 | 18 | 22 | ? | ? |

$y = 4x - 2$

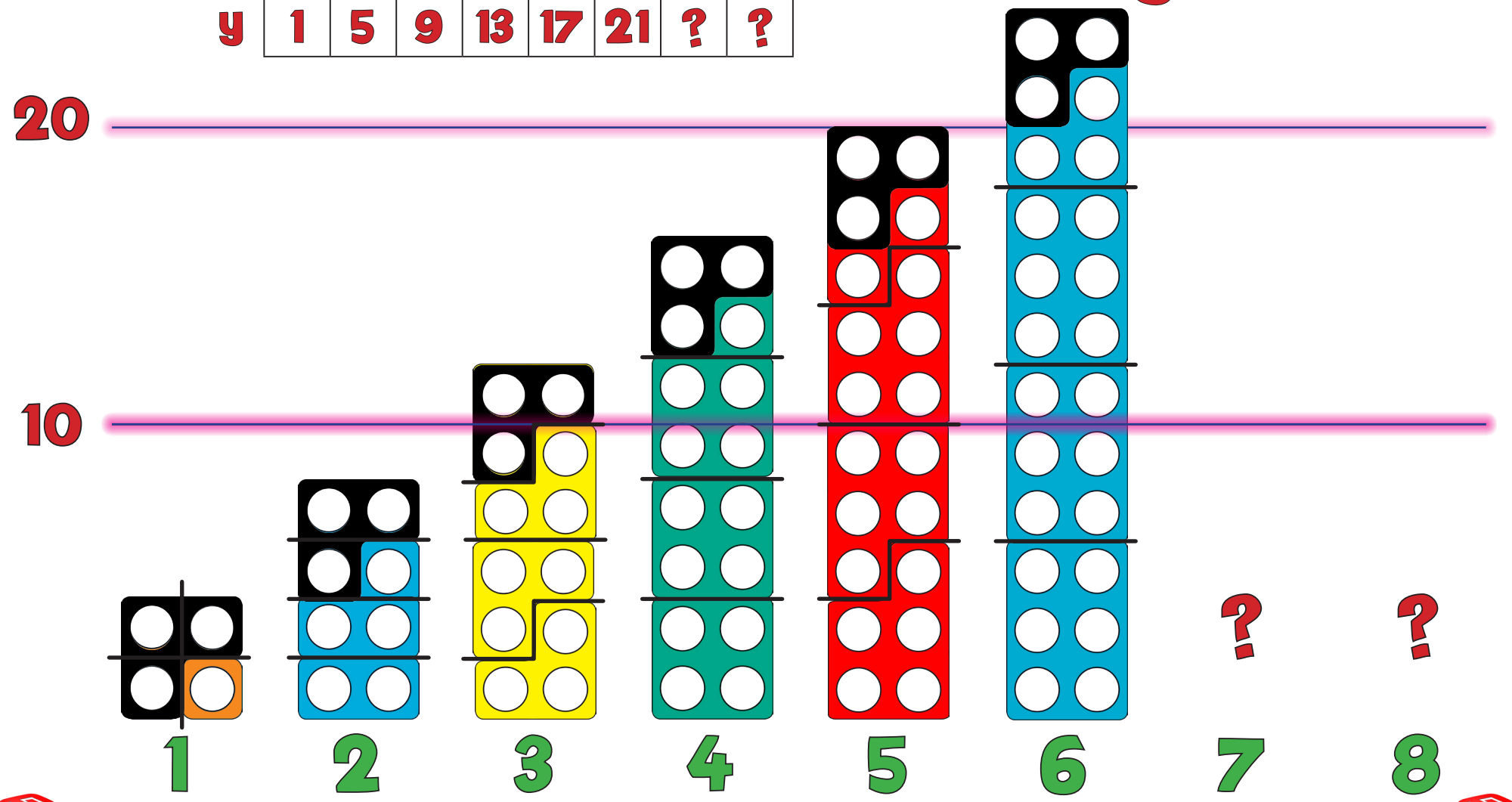


# AC: Number Shapes

5/6d

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| y | 1 | 5 | 9 | 13 | 17 | 21 | ? | ? |

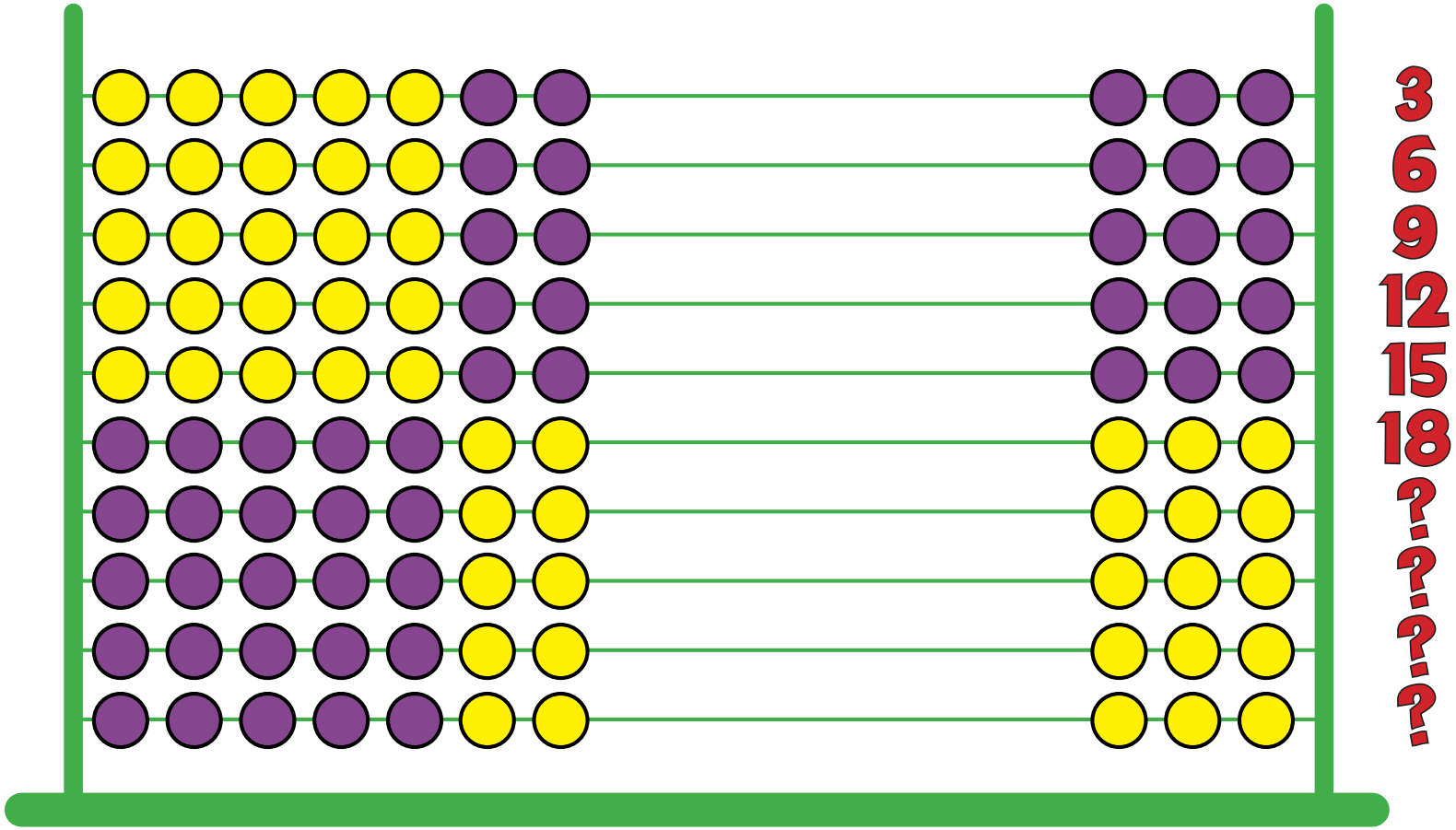
$y = 4x - 3$



# AD: Abacus

1/2

| | | |
|---|---|---|
| 1 | → | 3 |
| 2 | → | 6 |
| 3 | → | 9 |
| 4 | → | 12 |
| 5 | → | 15 |
| 6 | → | 18 |

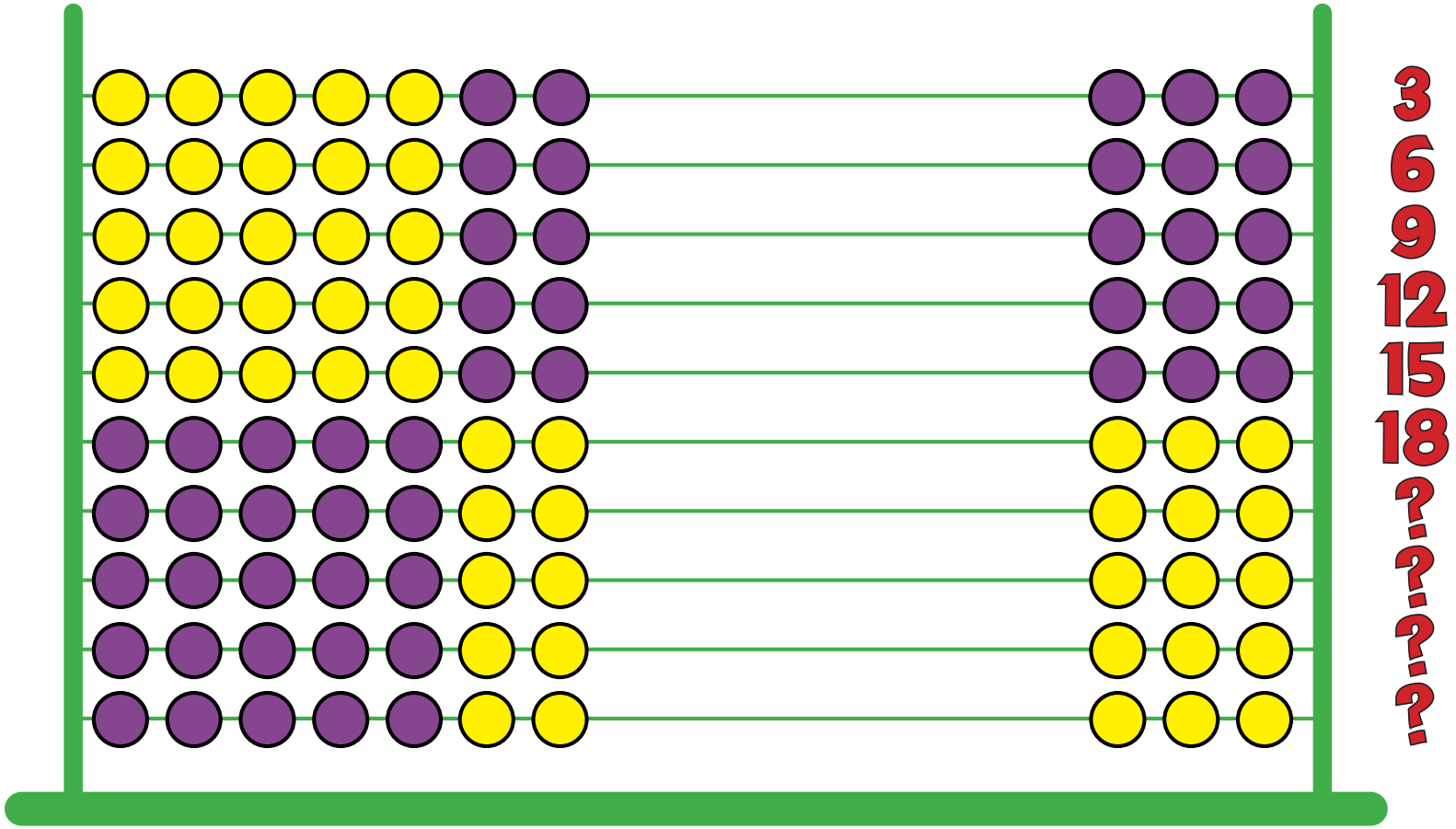


# AD: Abacus

3/4a

$$y = 3x$$

| x | x3 | y |
|---|---|---|
| 1 | → | 3 |
| 2 | → | 6 |
| 3 | → | 9 |
| 4 | → | 12 |
| 5 | → | 15 |
| 6 | → | 18 |

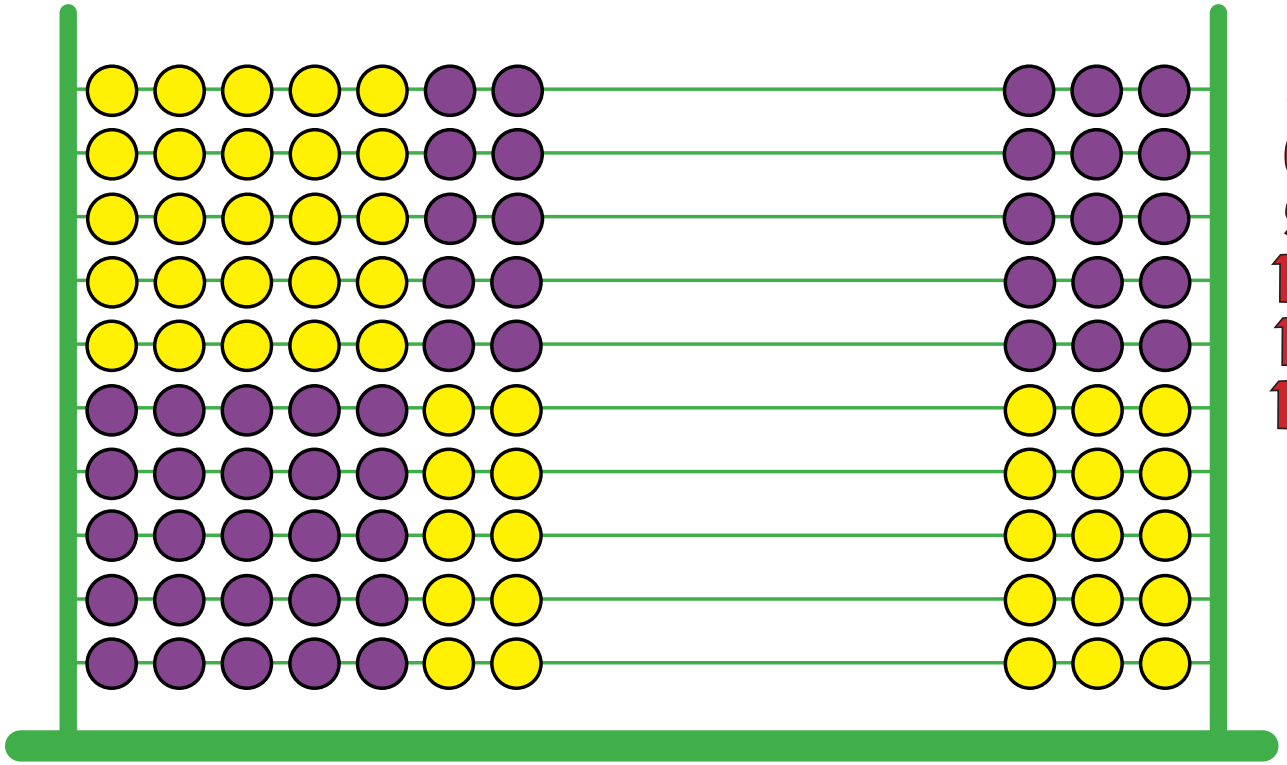


# AD: Abacus

3/4b

$$y = 3x$$

| x | x3 | y |
|---|---|---|
| 1 | → | 3 |
| 2 | → | 6 |
| 3 | → | 9 |
| 4 | → | 12 |
| 5 | → | 15 |
| 6 | → | 18 |



3 △

6 △△

9 △△△

12 △△△△

15 △△△△△

18 △△△△△△

? △△△△△△△

? △△△△△△△△

? △△△△△△△△△

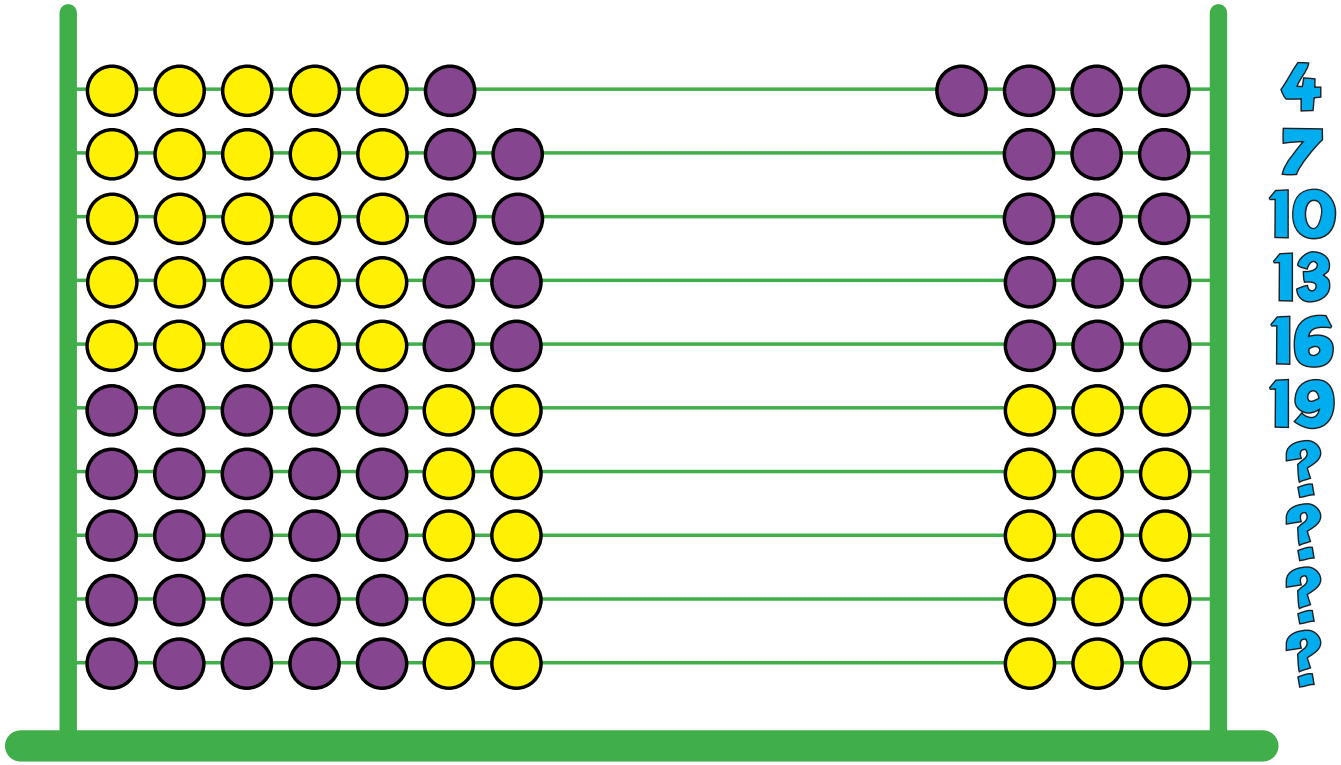
? △△△△△△△△△△

# AD: Abacus

3/4c

$$y = 3x + 1$$

| x | x3 | y | +1 | y |
|---|---|---|---|---|
| 1 | → | 3 | → | 4 |
| 2 | → | 6 | → | 7 |
| 3 | → | 9 | → | 10 |
| 4 | → | 12 | → | 13 |
| 5 | → | 15 | → | 16 |
| 6 | → | 18 | → | 19 |

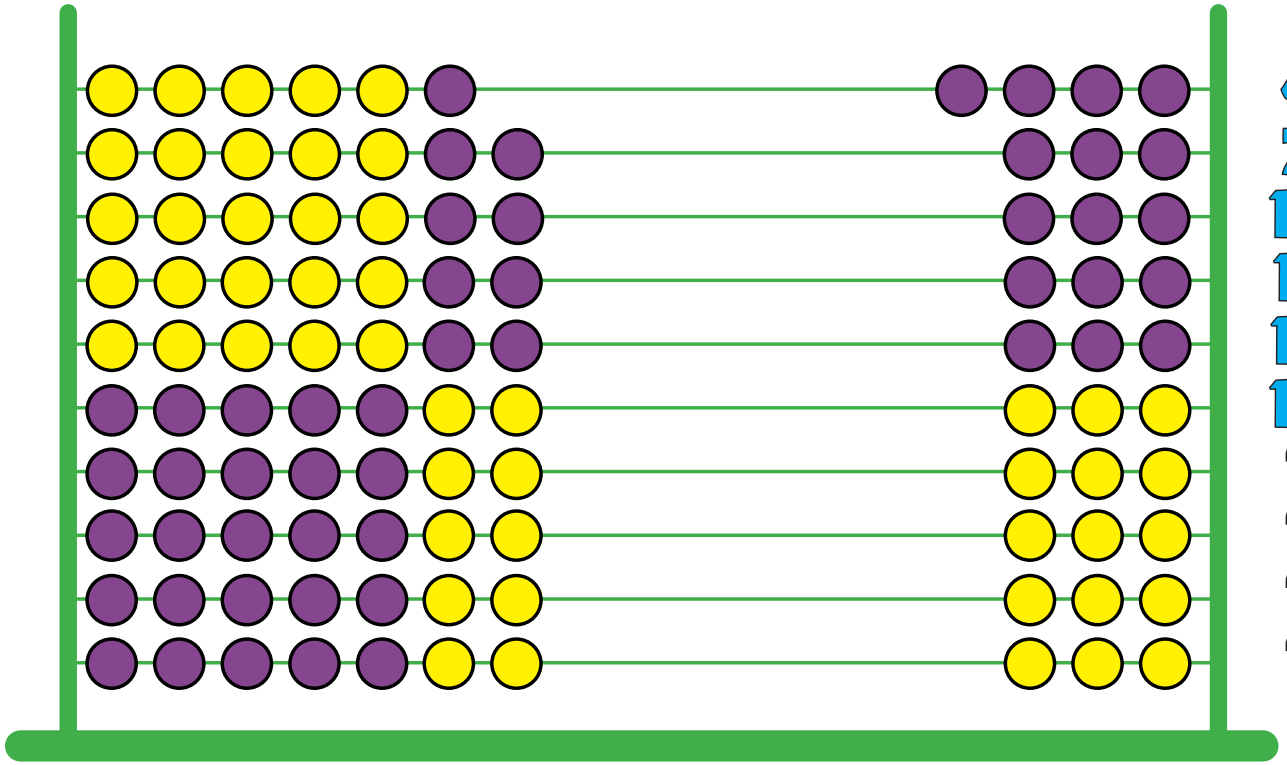


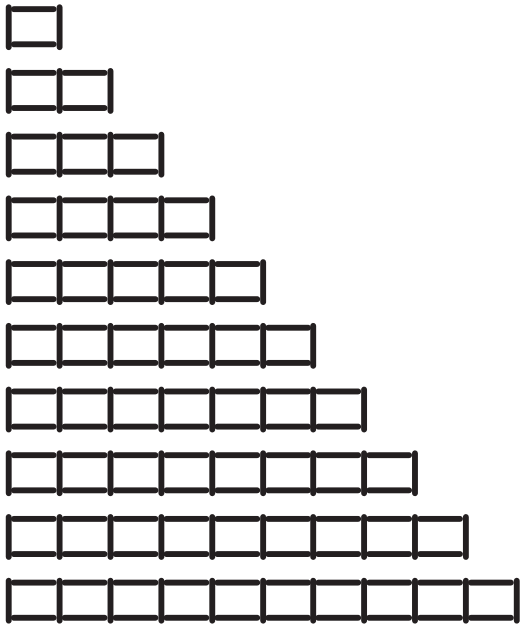
# AD: Abacus

5/6

$$y = 3x + 1$$

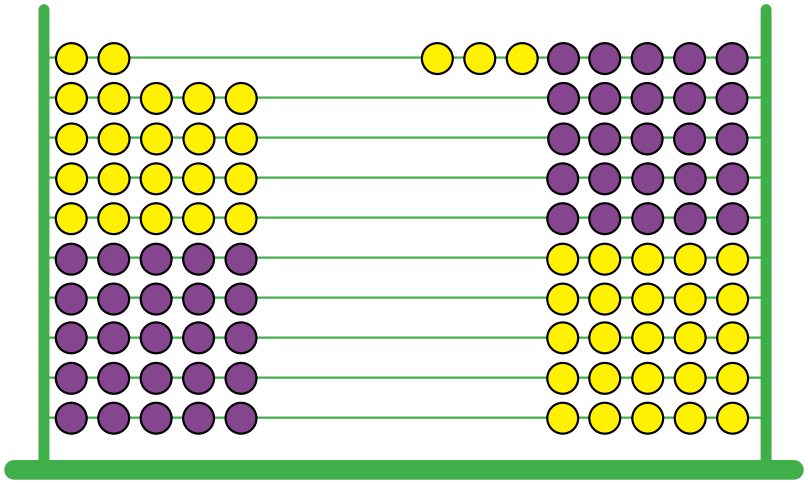
| x | x3 | y | +1 | y |
|---|---|---|---|---|
| 1 | → | 3 | → | 4 |
| 2 | → | 6 | → | 7 |
| 3 | → | 9 | → | 10 |
| 4 | → | 12 | → | 13 |
| 5 | → | 15 | → | 16 |
| 6 | → | 18 | → | 19 |



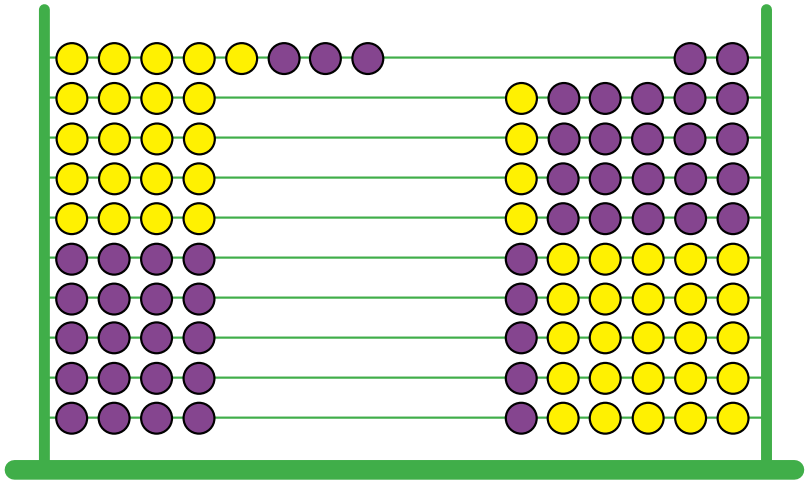



# AD: Abacus

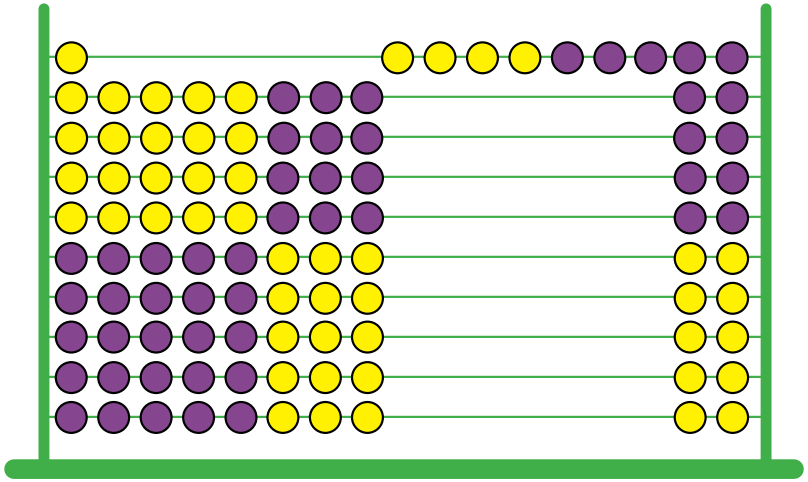
6



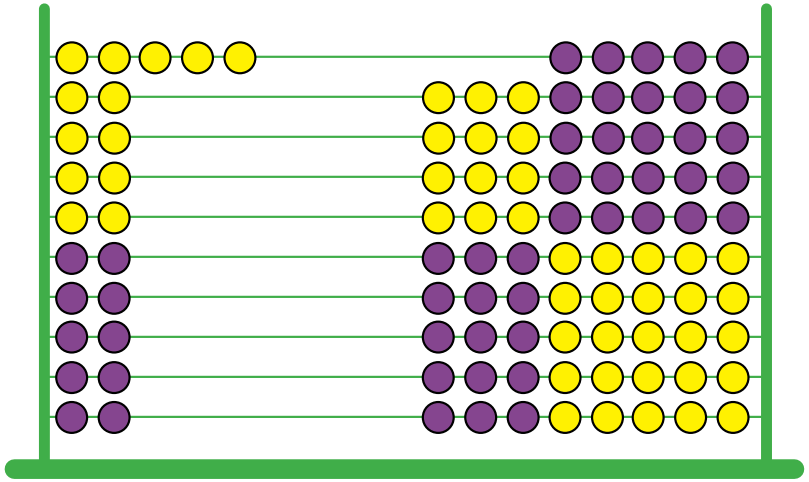
$y = 5x + 3$



$y = 6x - 4$



$y = 2x + 7$

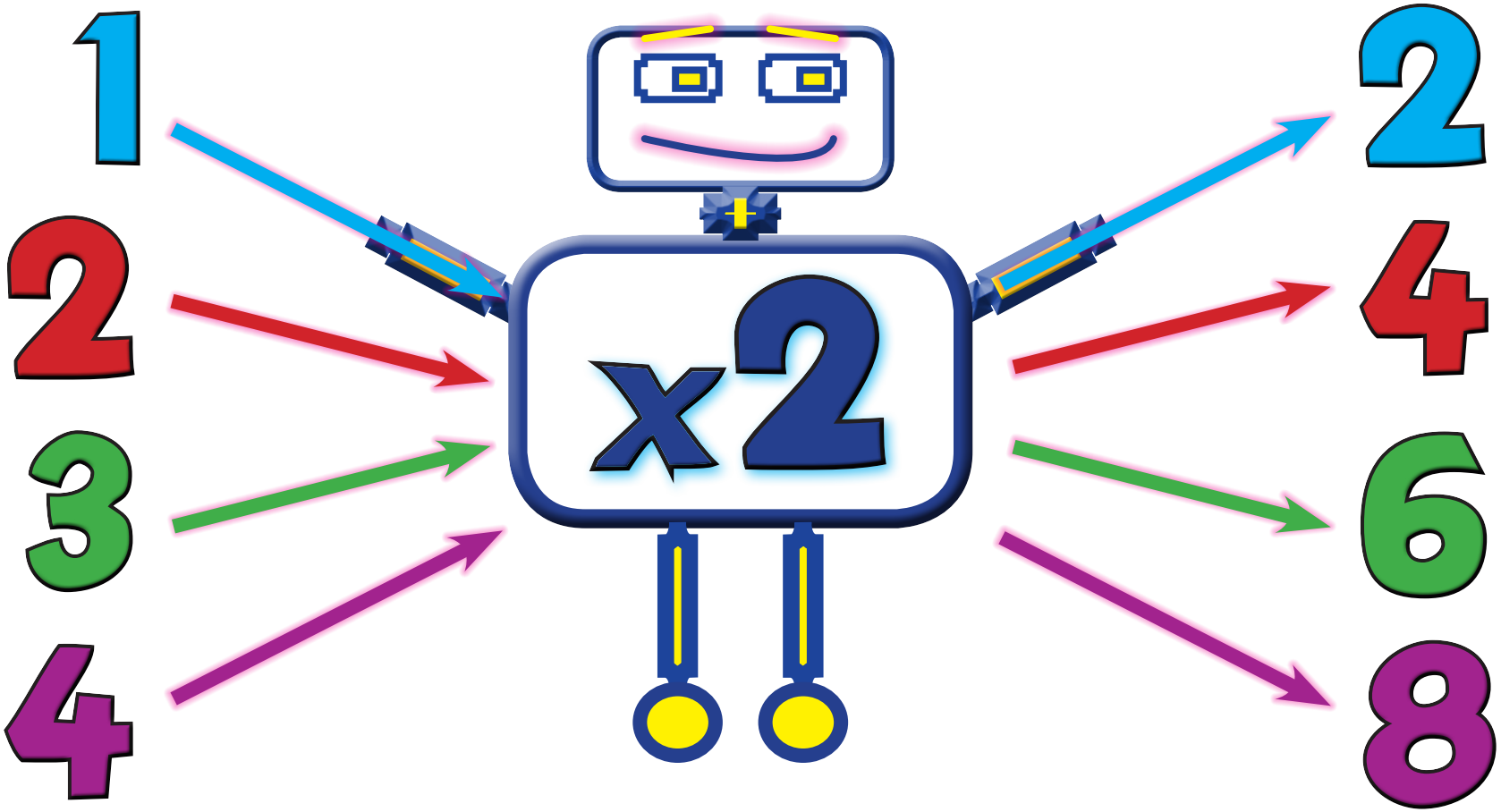


$y = 8x - 3$

# AE: Doubling Machines

1

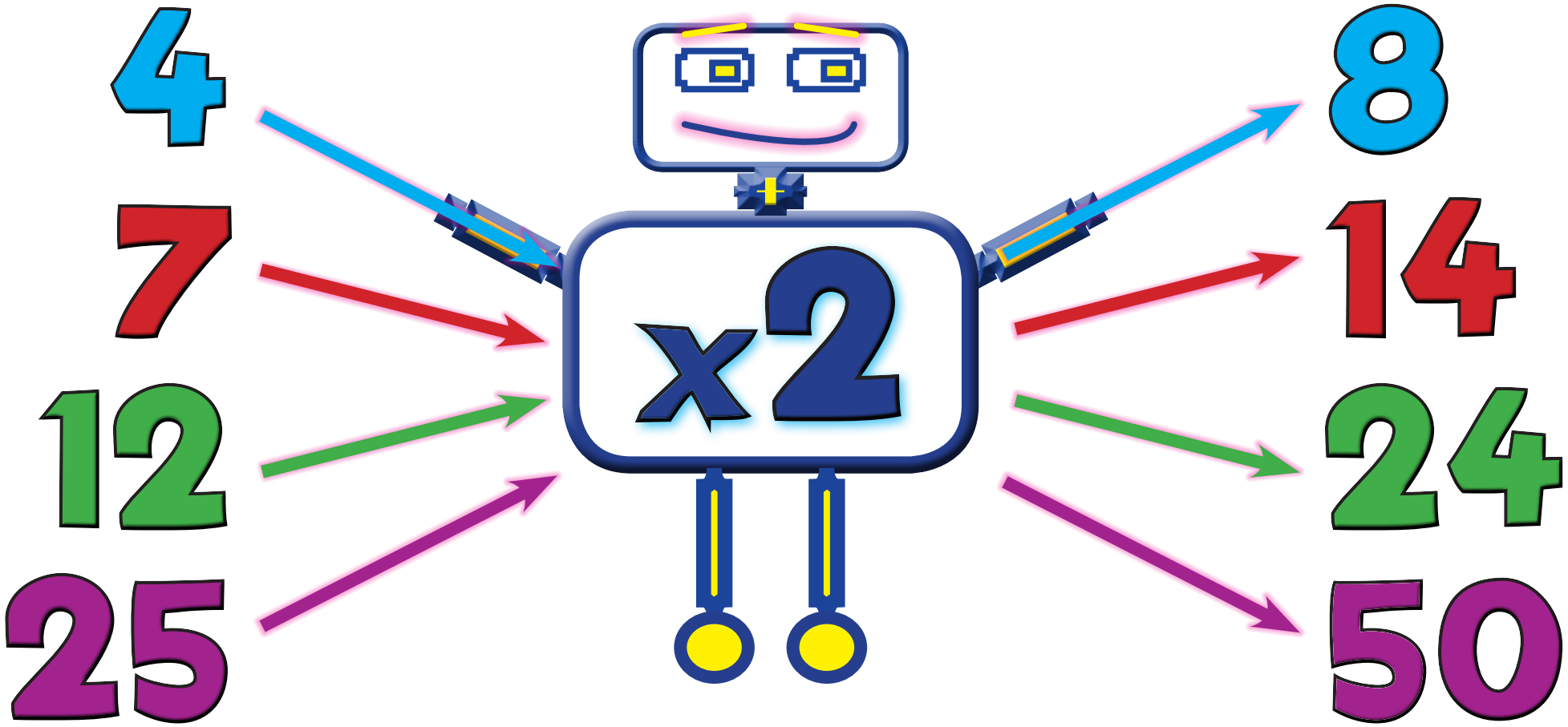
## Numerical Order



# AE: Doubling Machines

## 2a

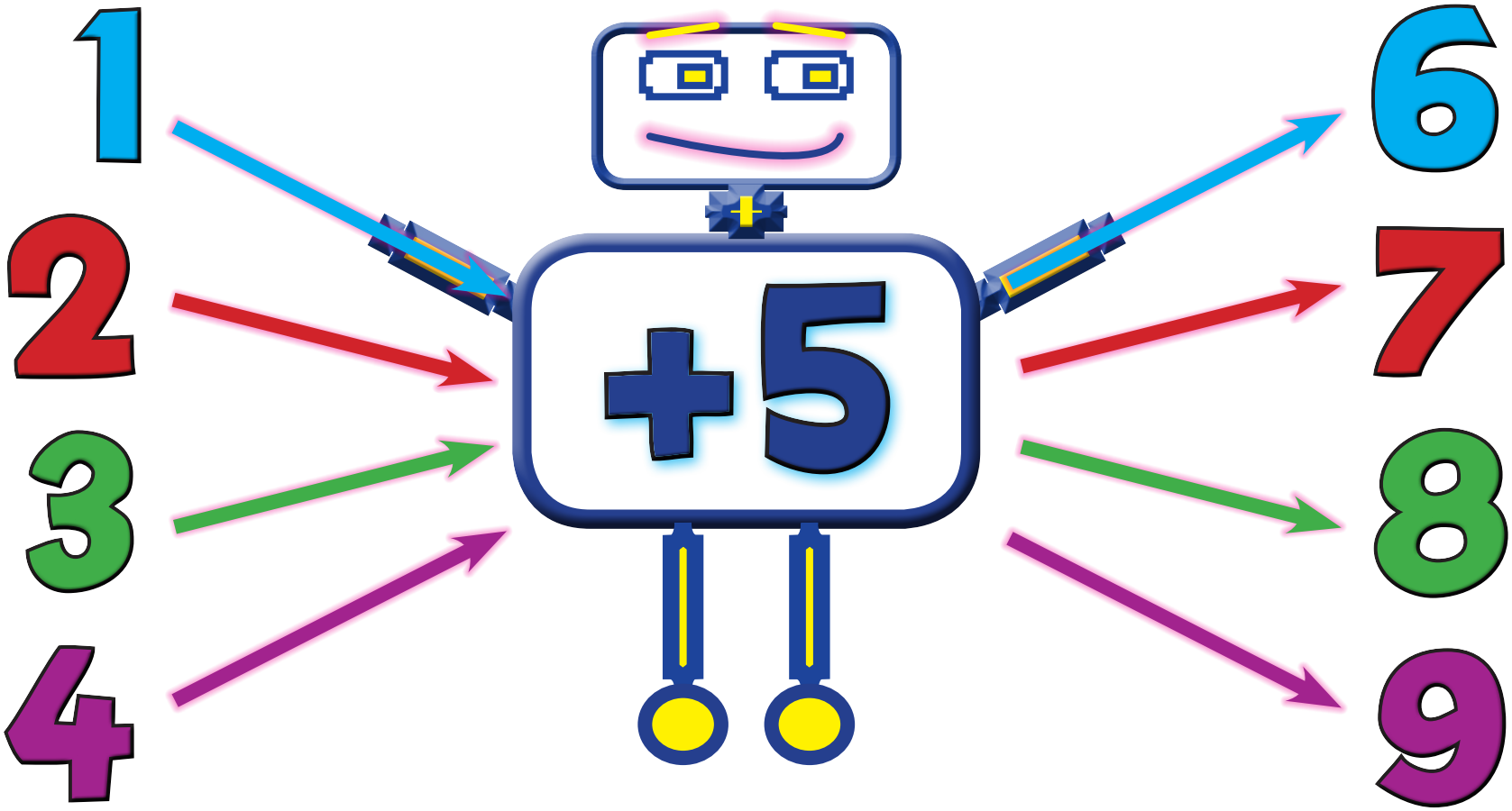
Random



# AE: Function Machines

## 2b

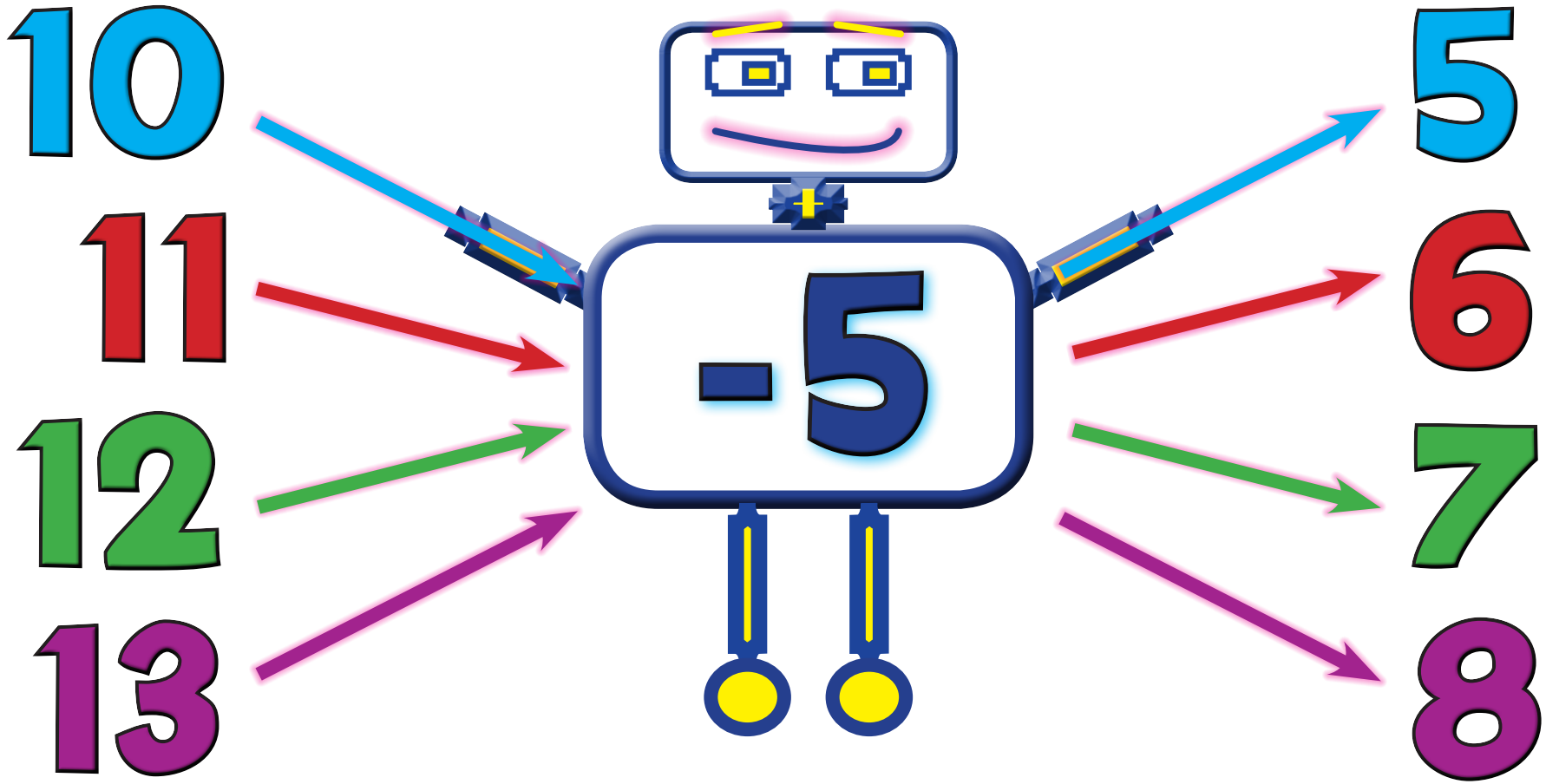
## Numerical Order



# AE: Function Machines

## 2c

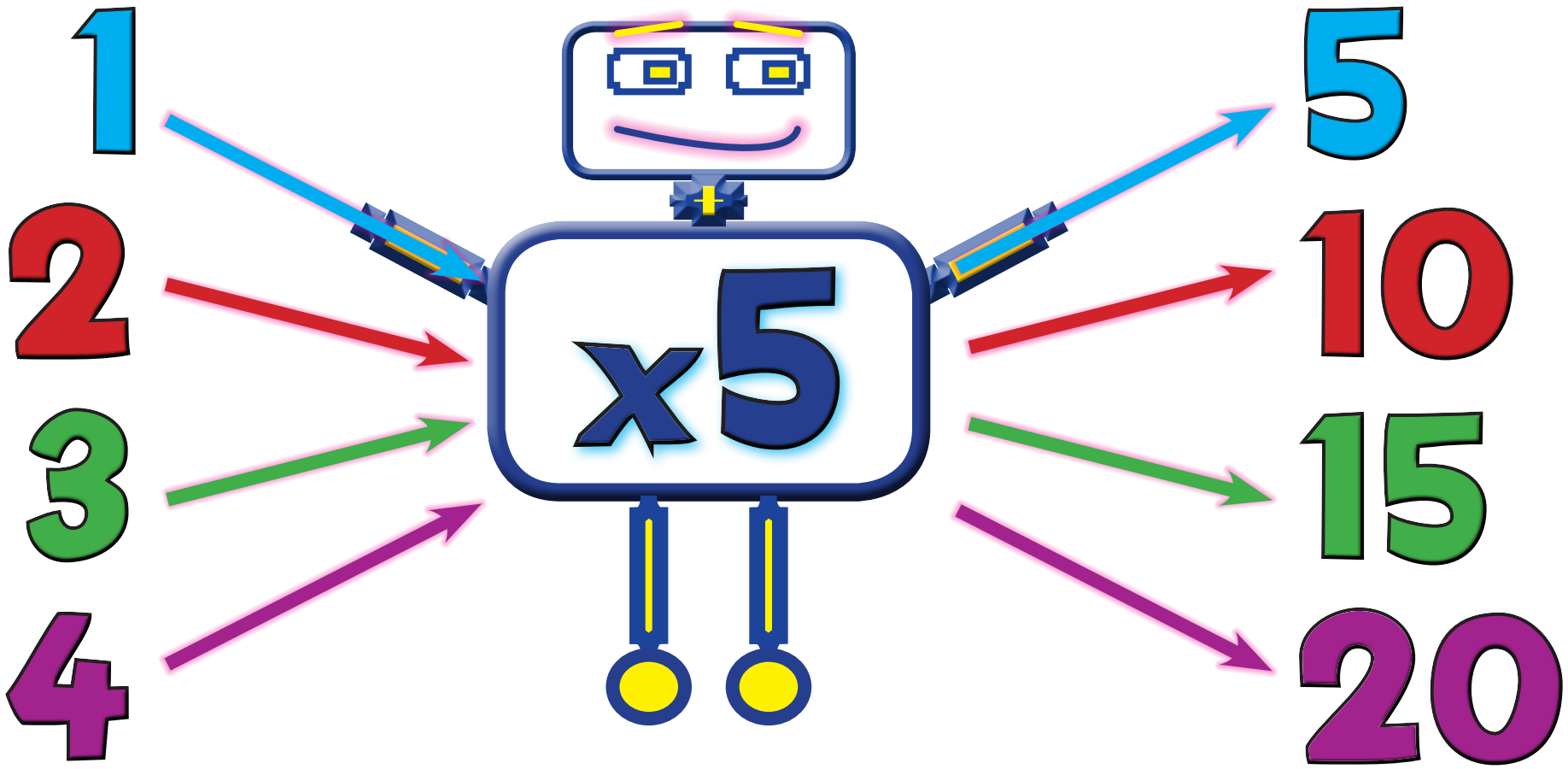
## Numerical Order



# AE: Function Machines

## 2d

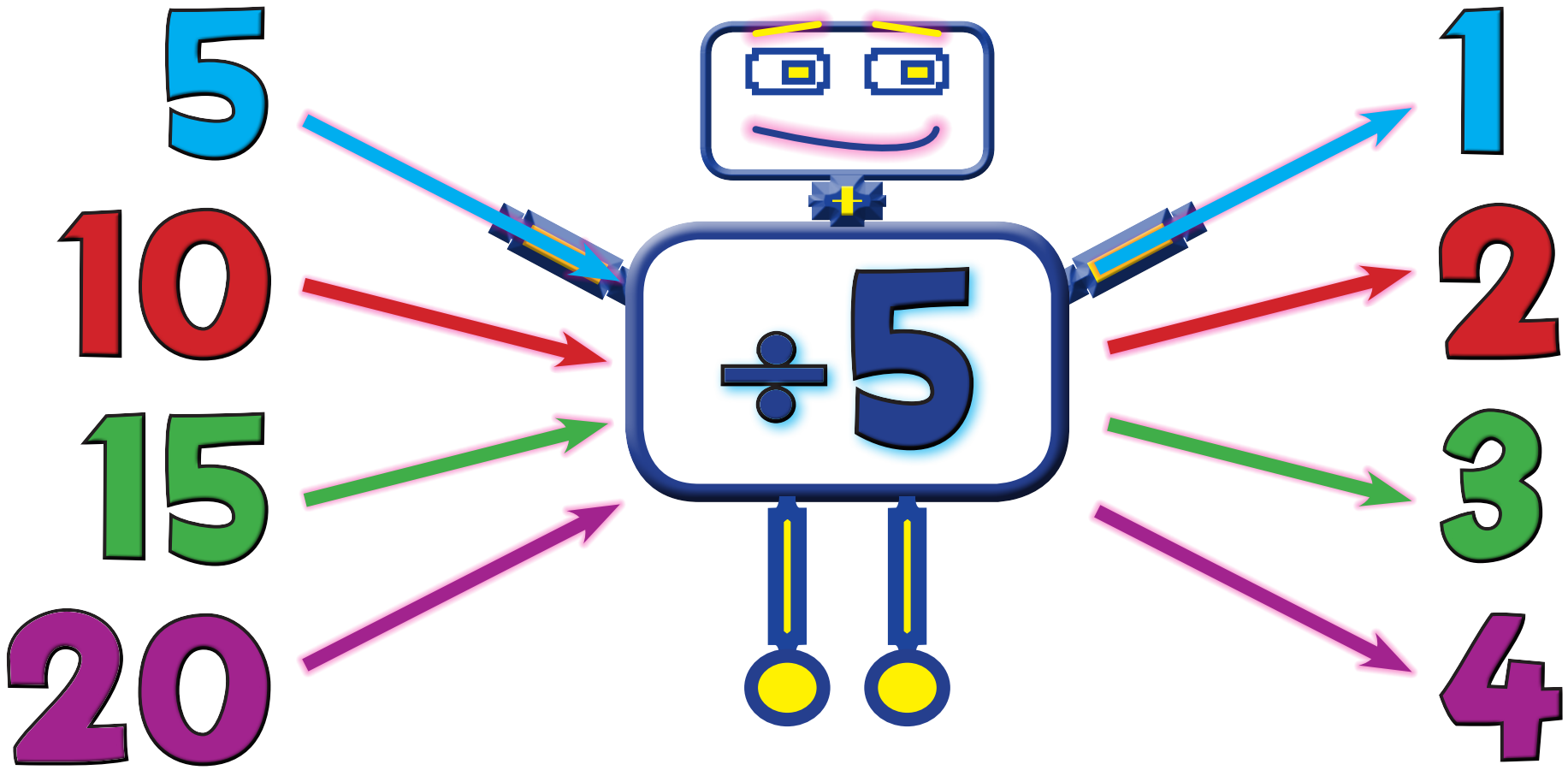
### Numerical Order



# AE: Function Machines

## 2e

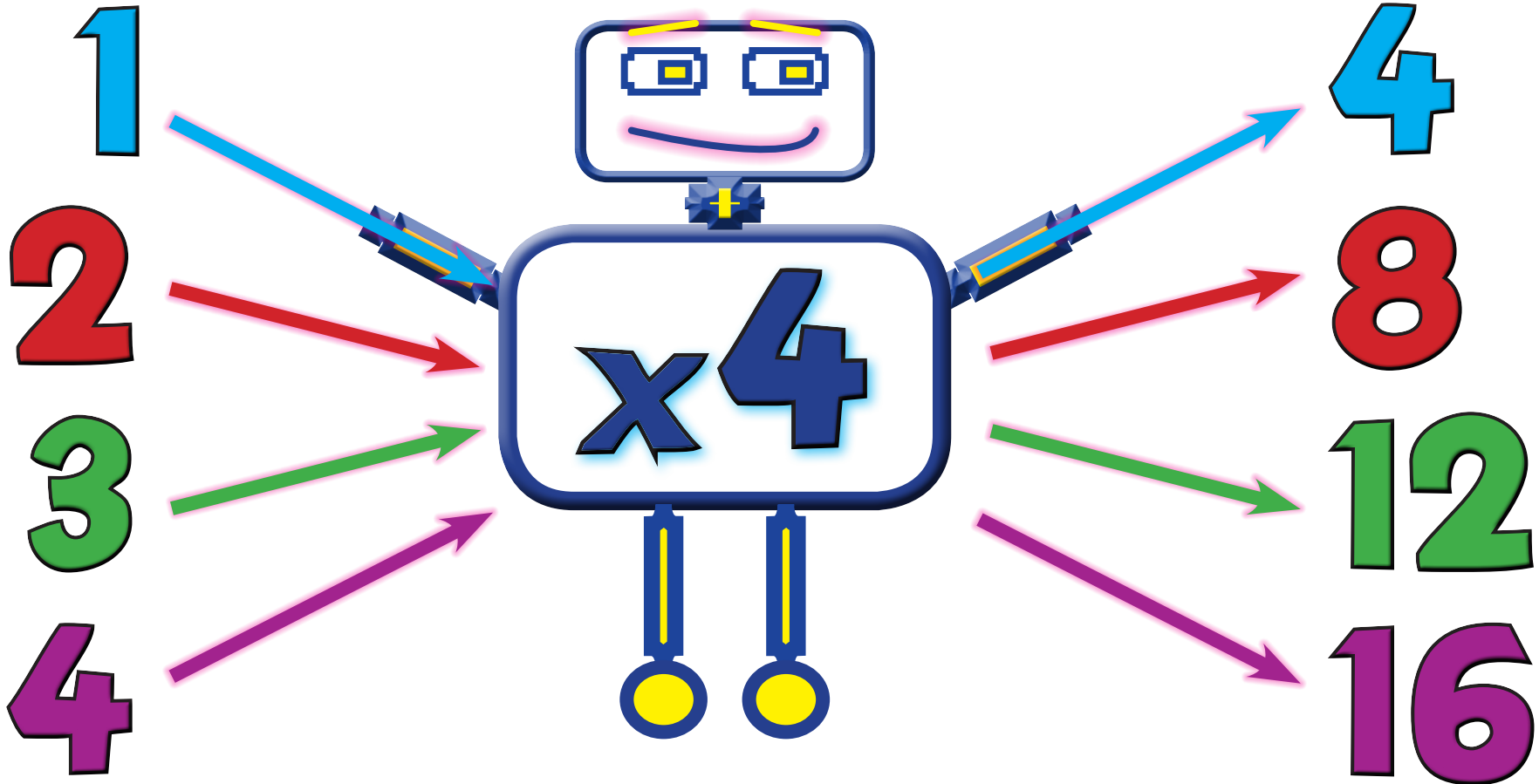
## Numerical Order



# AE: Function Machines

## 3a

## Numerical Order

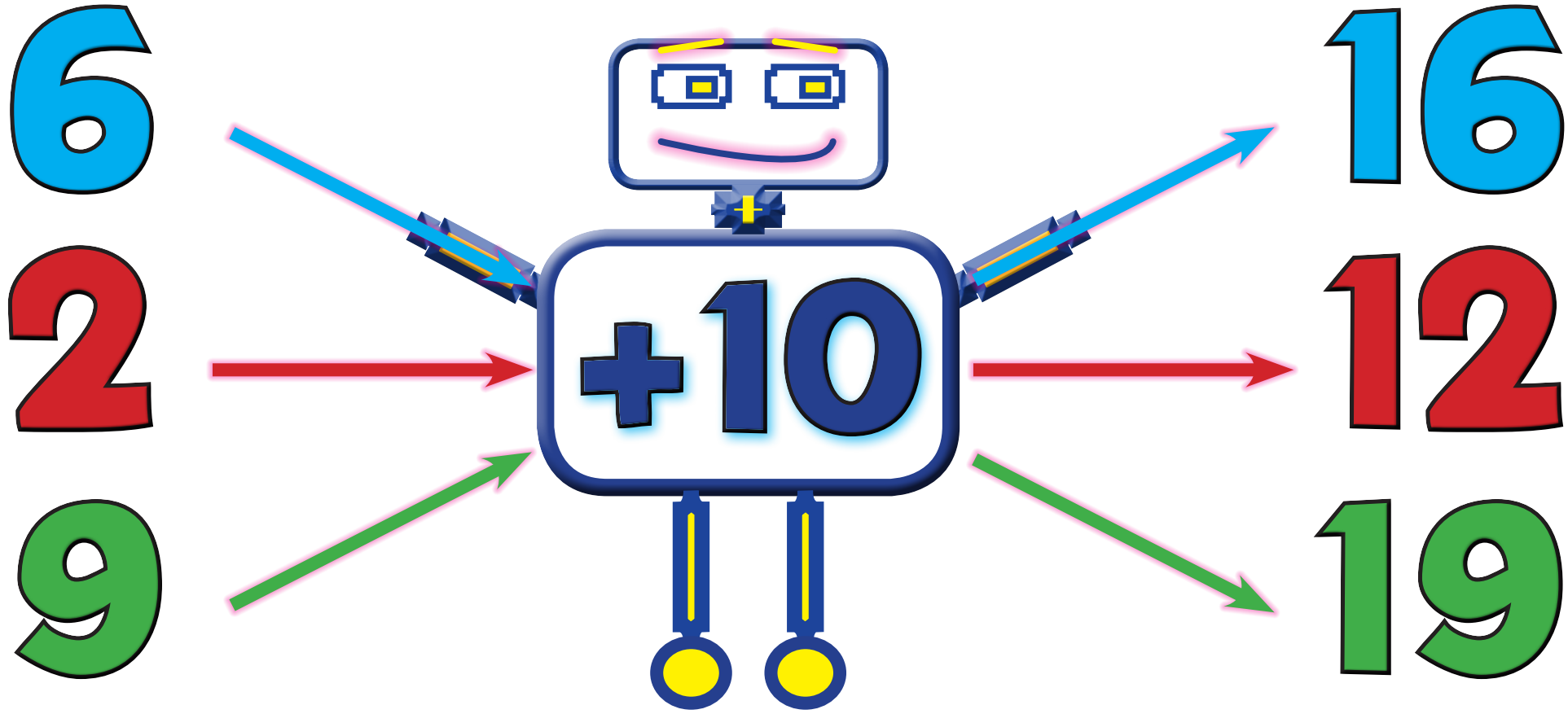



| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| y | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 |

# AE: Function Machines

3b

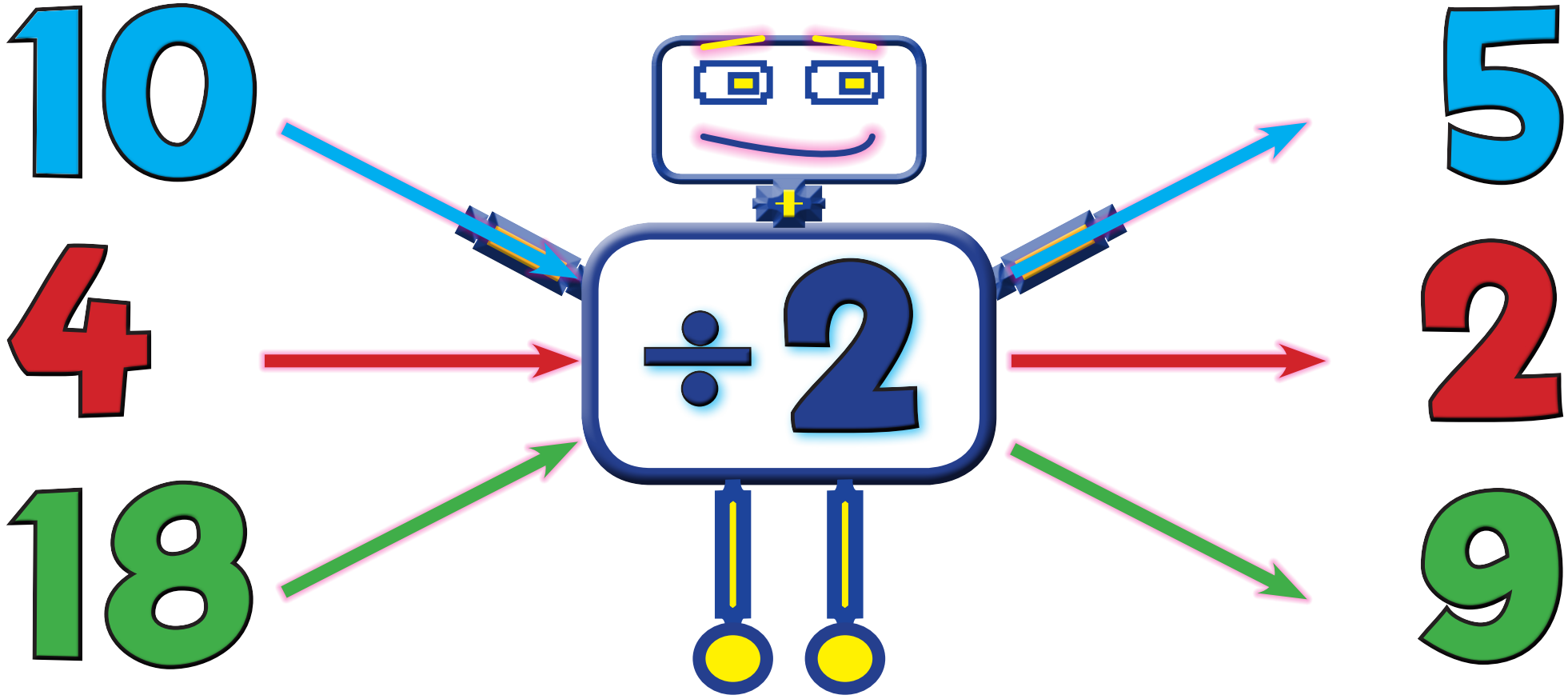
Random



# AE: Function Machines

3c

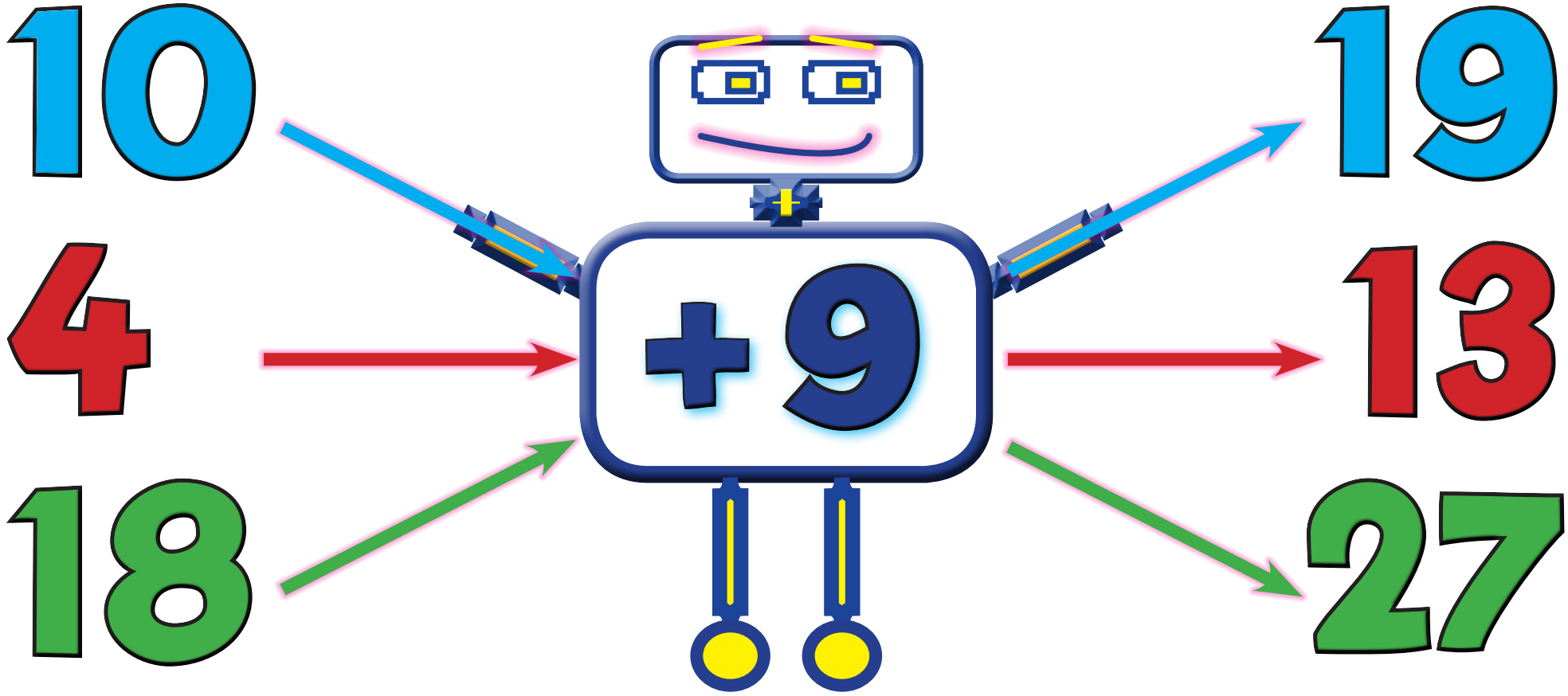
Random



# AE: Function Machines

3d

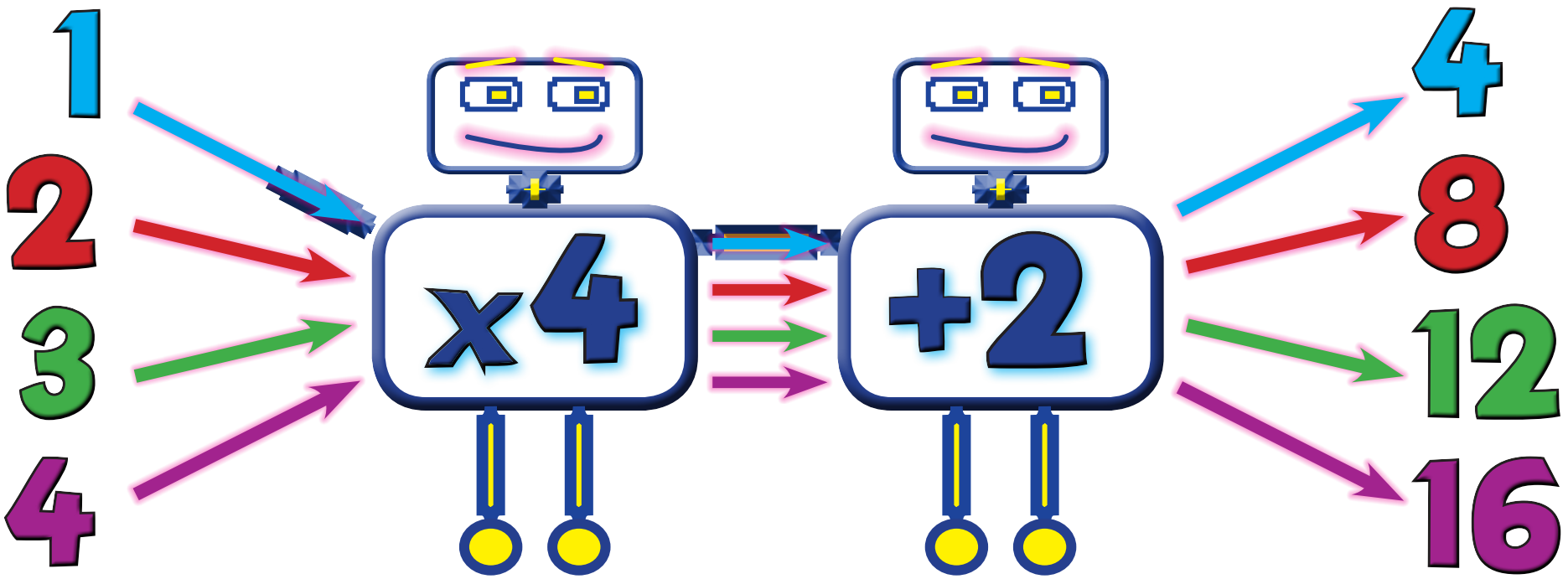
Random



# AE: Function Machines

## 4a

## Numerical Order

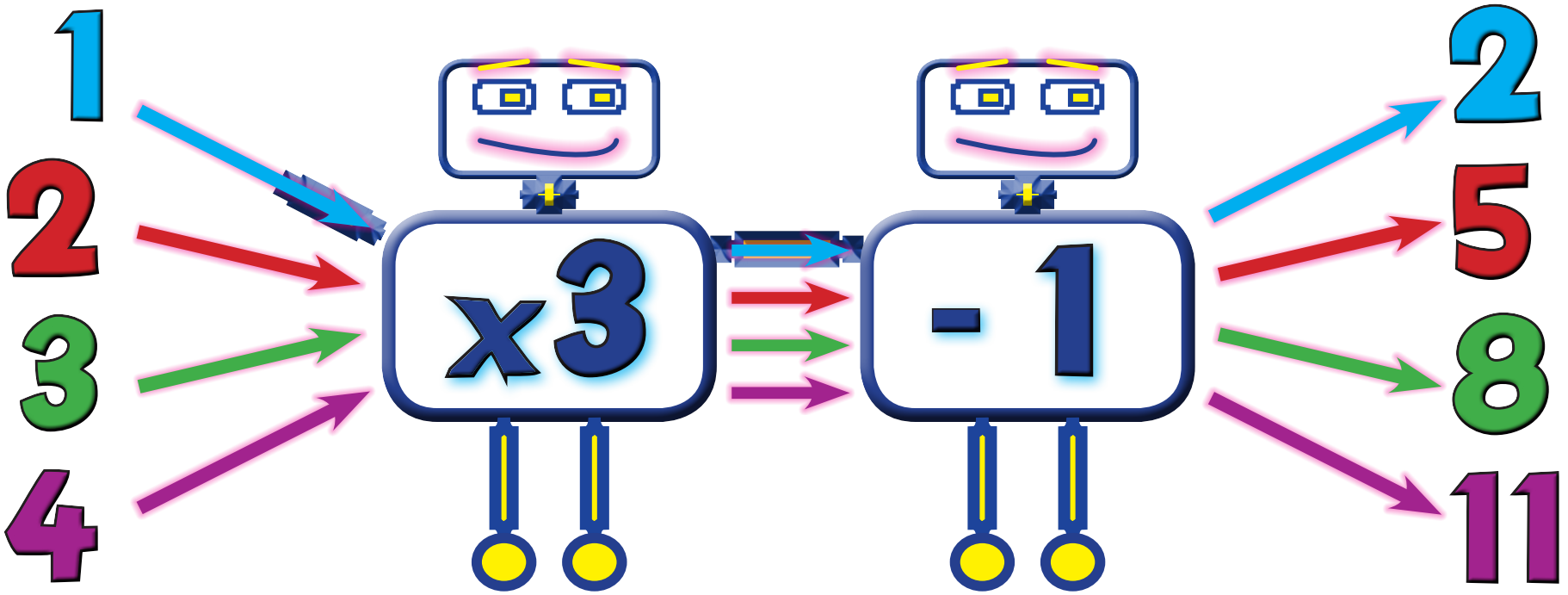



| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| x4 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 |
| +2 | 6 | 10 | 14 | 18 | 22 | 26 | 30 | 34 | 38 | 42 |

# AE: Function Machines

## 4b

## Numerical Order

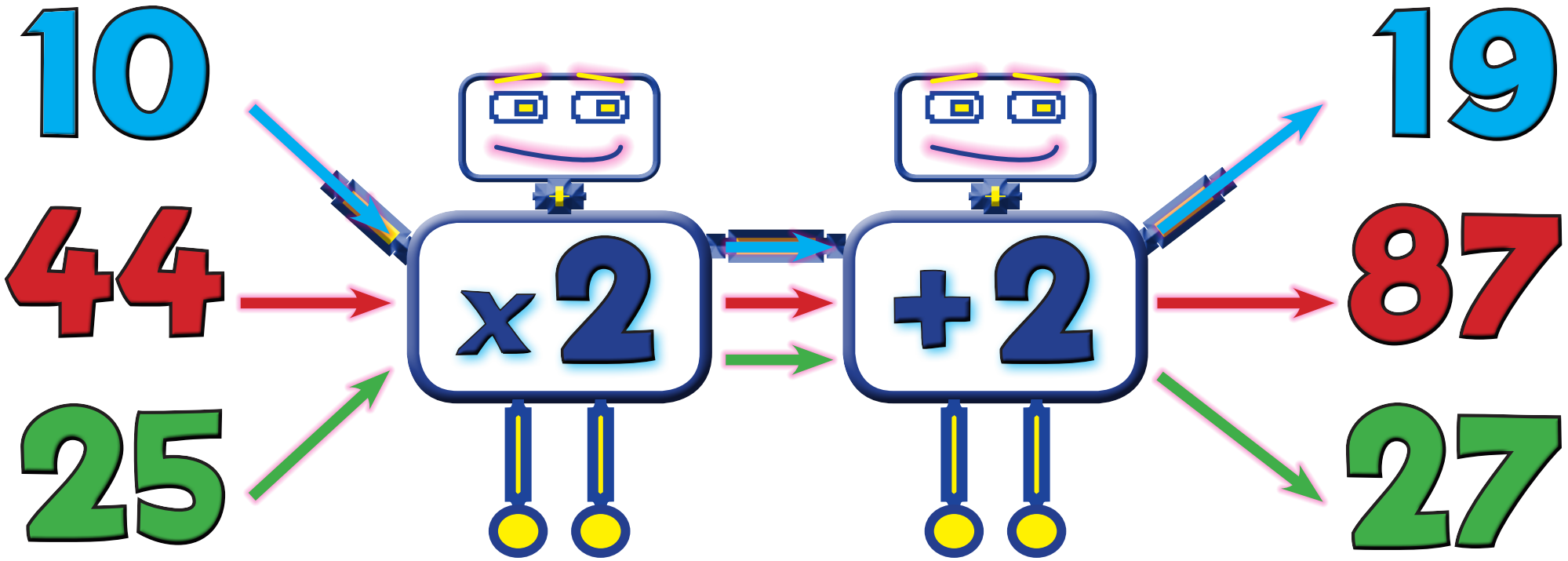



| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| x3 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 |
| -1 | 2 | 5 | 8 | 11 | 14 | 17 | 20 | 23 | 26 | 29 |

# AE: Function Machines

4c

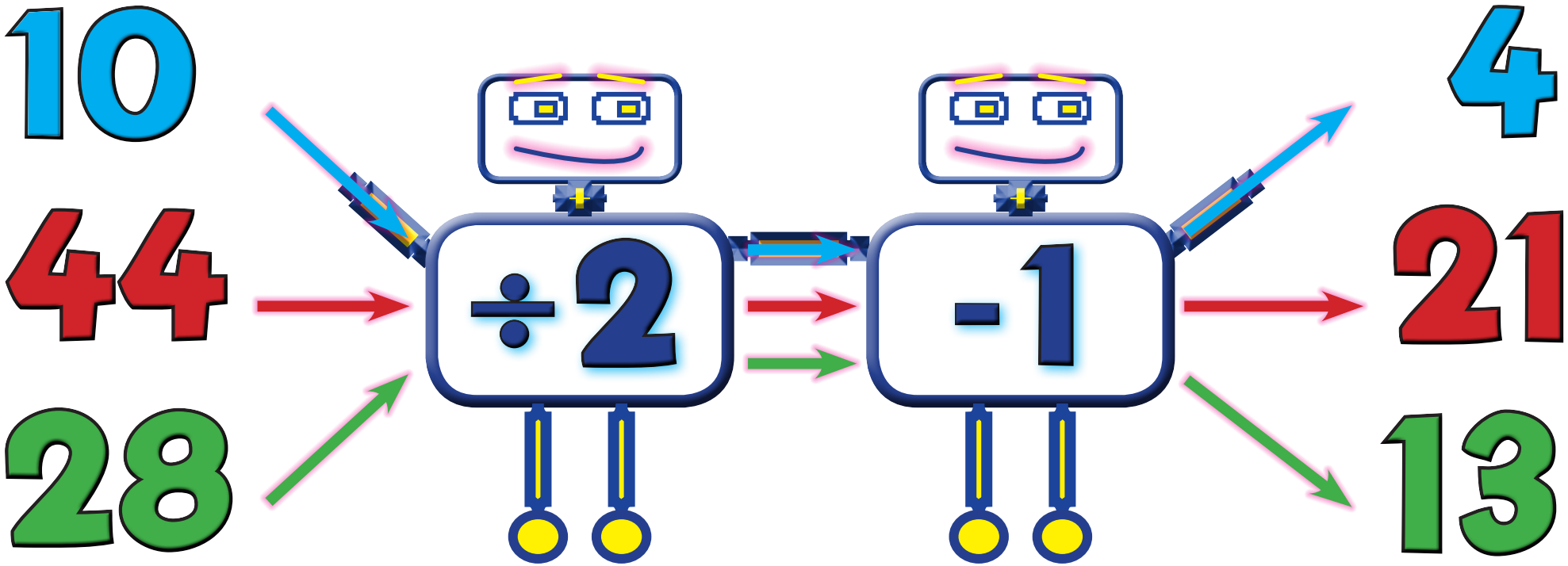
Random



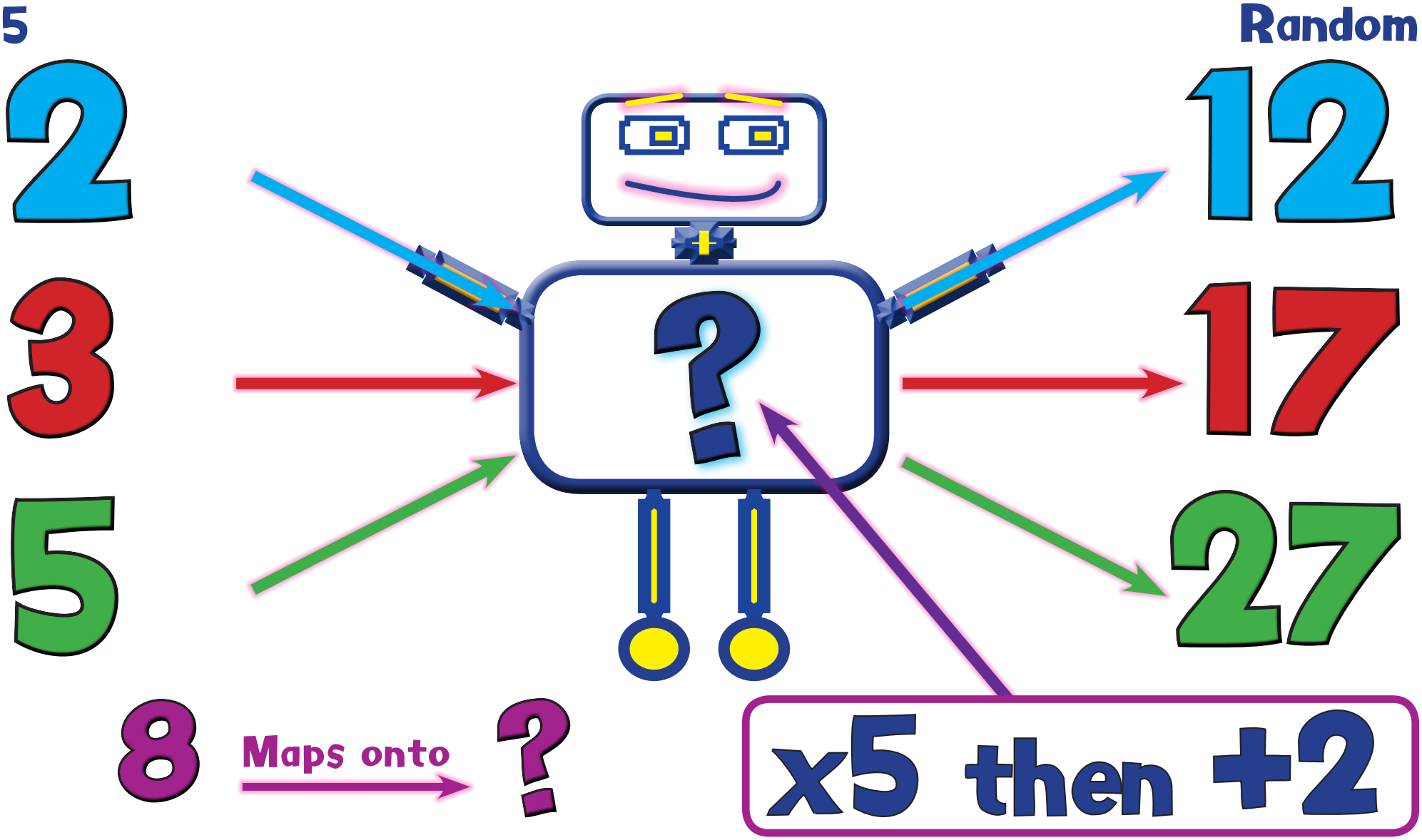
# AE: Function Machines

4d

Random

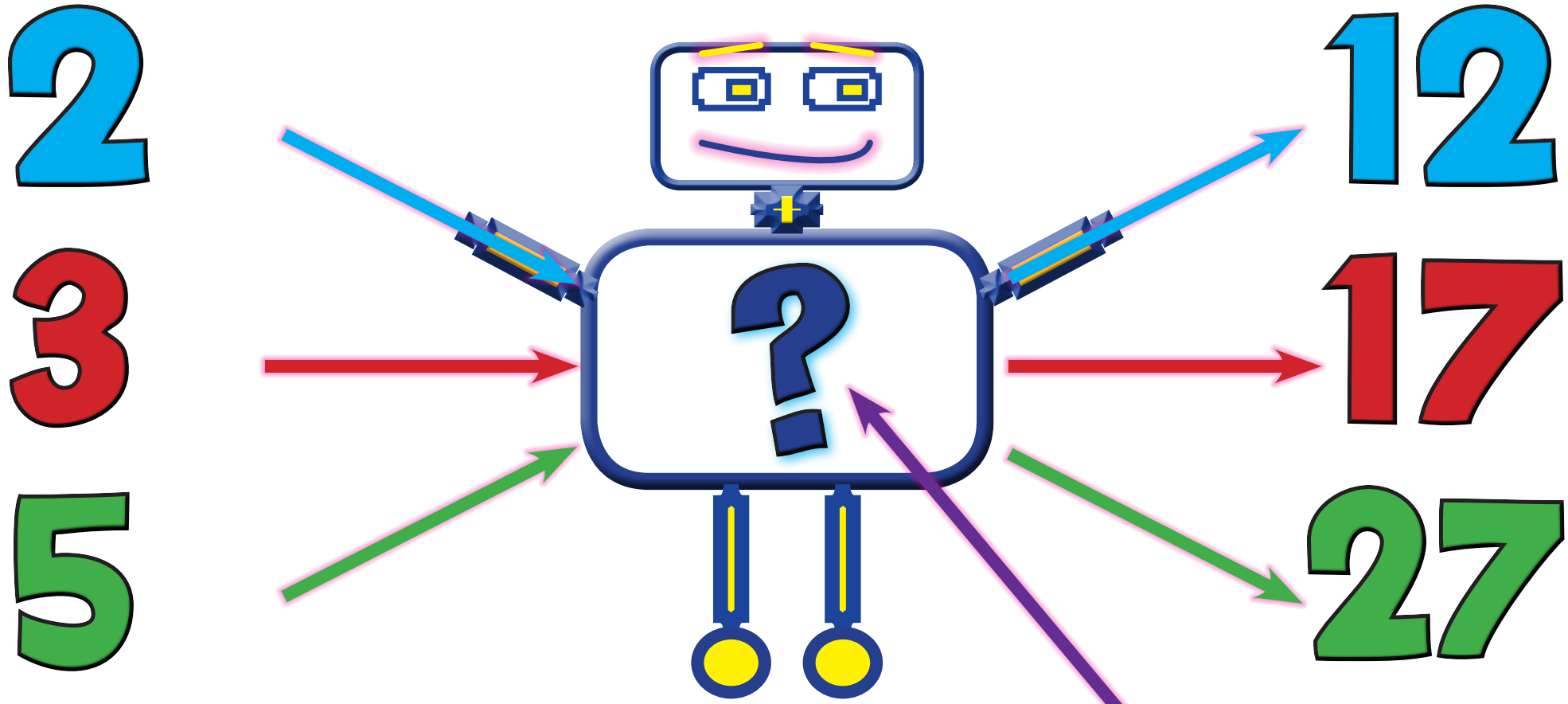


# AE: Function Machines



# AE: Function Machines

6a




n Maps onto ?

x5 then +2

# AE: Function Machines

## 6b Guardian of the Rule

1 Maps onto 7

2 Maps onto 12

3 Maps onto 17

4 Maps onto 22

10 Maps onto 52

n Maps onto ?

Here's the Guardian's nth term Rule!

"5n + 2!"

# AE: Function Machines

6c

## Guardian of the Rule

1 Maps onto 4

2 Maps onto 8

3 Maps onto 12

4 Maps onto 16

10 Maps onto 20

n Maps onto ?

Here's the Guardian's nth term Rule!

"4n!"

# AE: Function Machines

6d

## Guardian of the Rule

1 Maps onto 2

2 Maps onto 6

3 Maps onto 10

4 Maps onto 14

10 Maps onto 38

n Maps onto ?

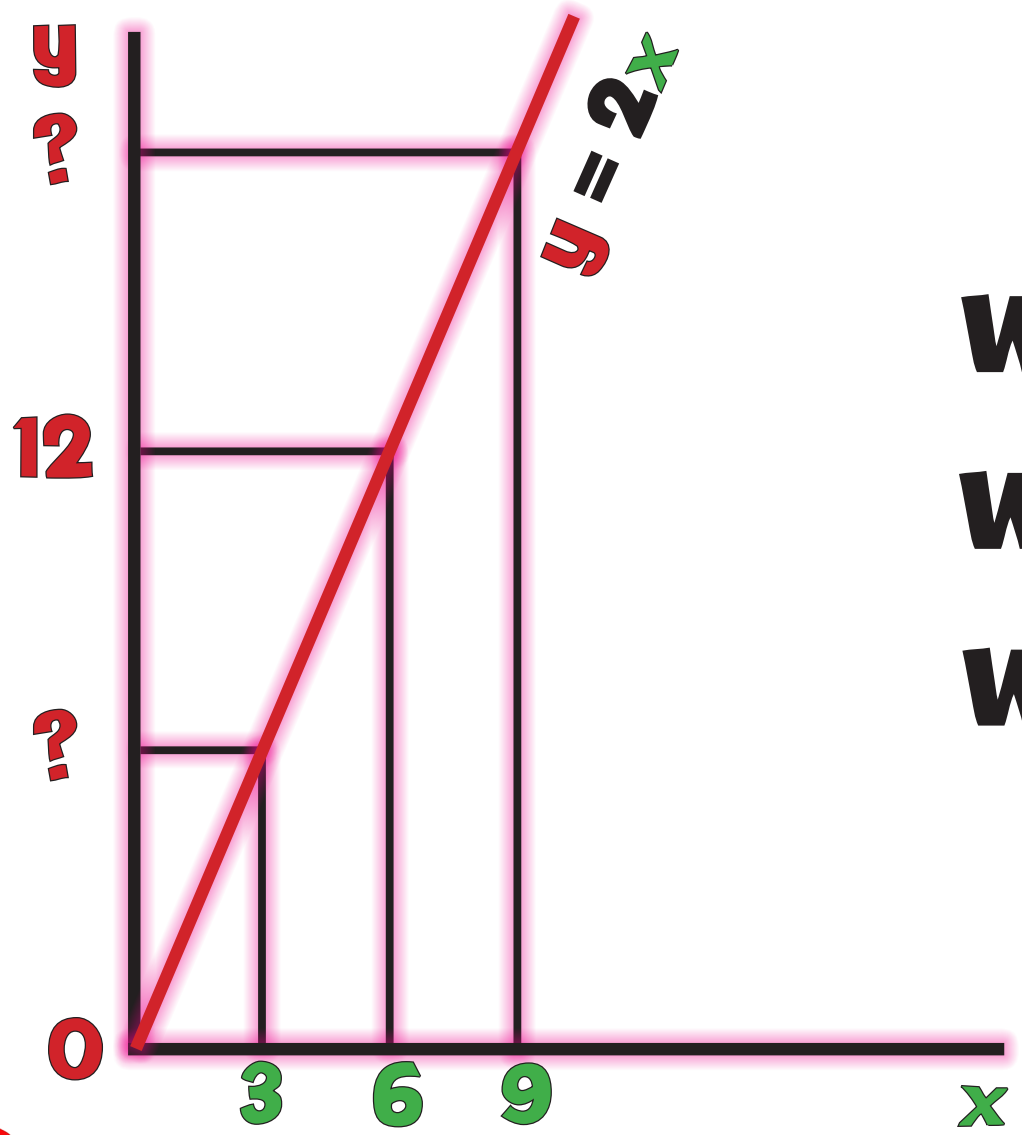
Here's the Guardian's nth term Rule!

"4n - 2!"

# AF: Times Tables

## Sequence on a Graph

4a




When x is 3, y is ?

When x is 6, y is 12

When x is 9, y is ?

# AF: Terms of a Sequence

4b

| First Term | | | | | | 10th Term | 100th Term |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | → | 10 | 100 |
| | | | | | → | | |

First Term is _____

Step Size is _____

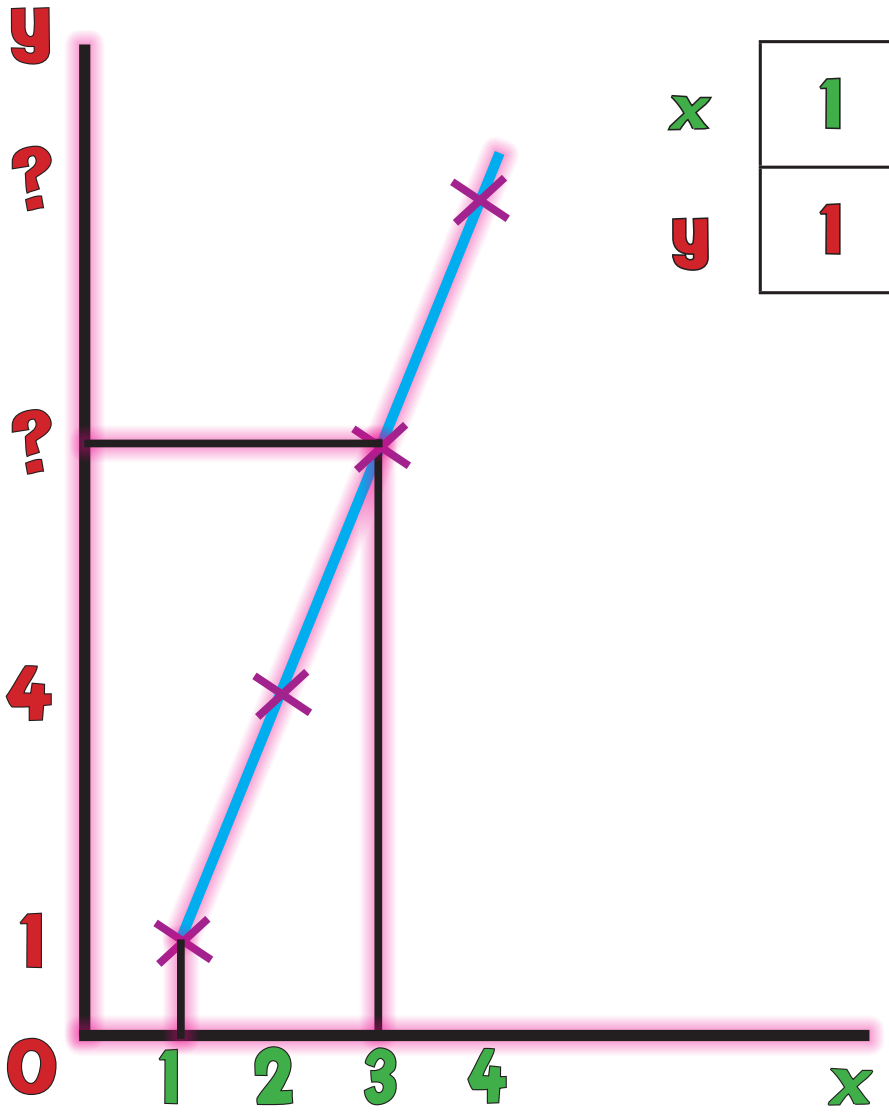
10th Term will be _____

100th Term will be _____

Hint: Compare the sequence to the step size times-table

# AF: Graphing a Sequence

5a

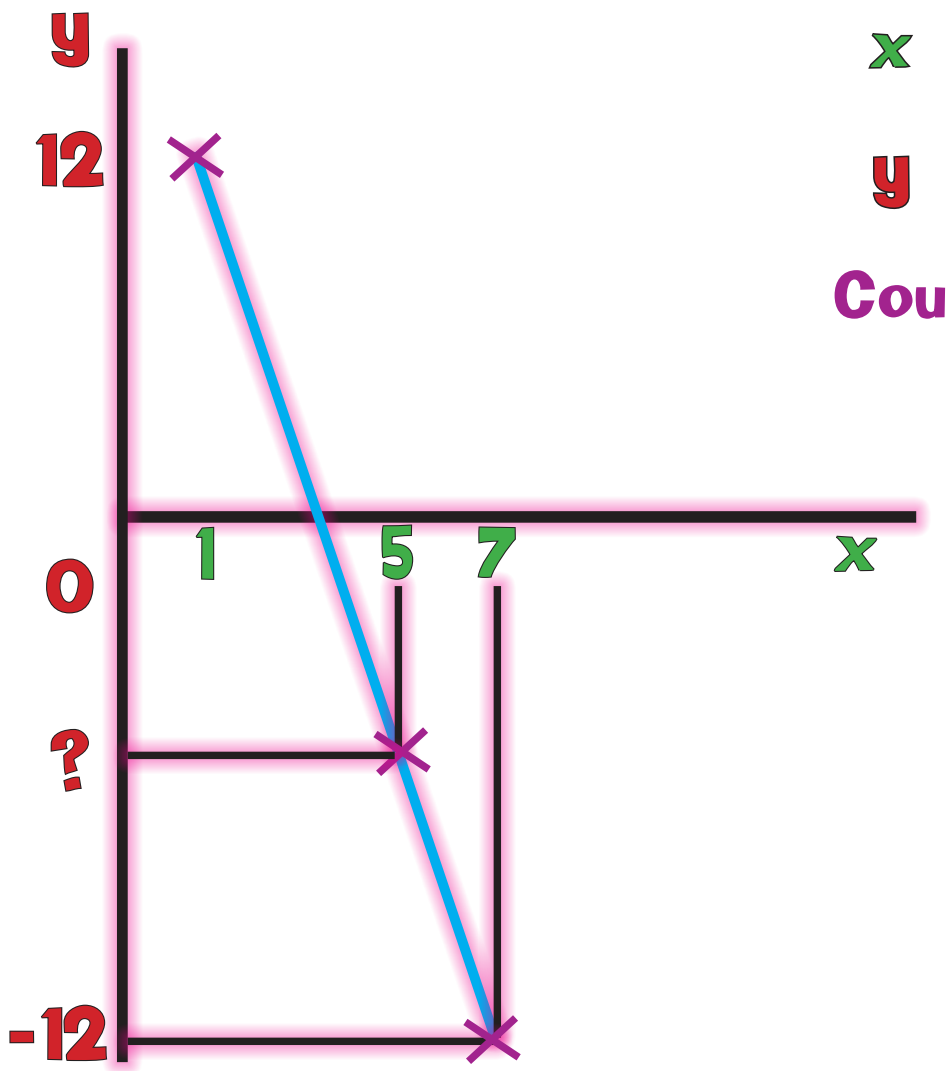



| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| y | 1 | 4 | ? | ? | 13 | 16 | ? | ? |

Counting on in 3's, starting at 1

# AF: Graphing a Sequence

5b

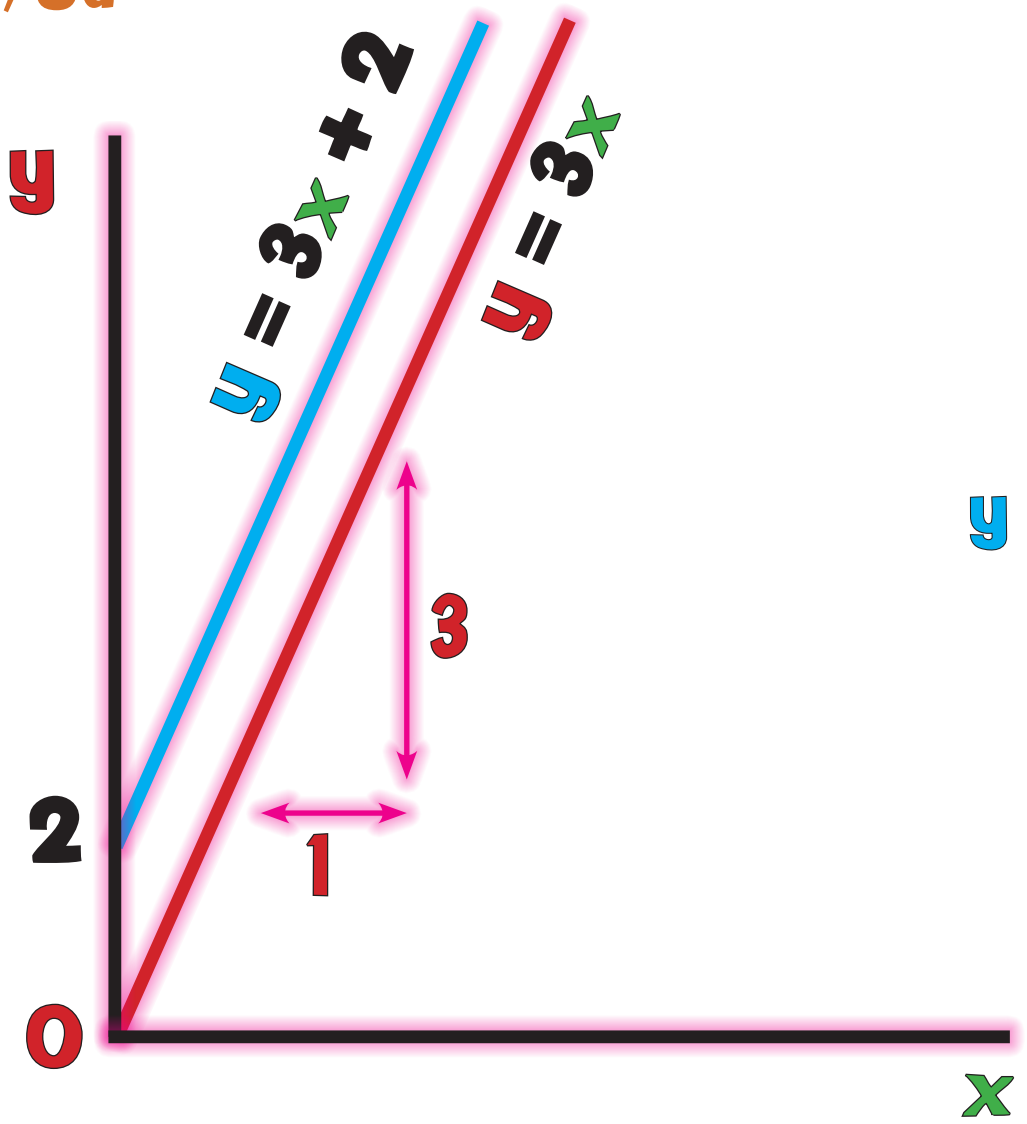



| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| y | 12 | 8 | 4 | 0 | ? | ? | -12 |

Counting back in 4's, starting at 12

# AF: Shifting '3 Sequence'

5/6a




| | | | | | | |
|---|---|---|---|---|---|---|
| x | 1 | 2 | 3 | 4 | → | n |
| y = 3x | 3 | 6 | 9 | 12 | → | n |
| y = 3x + 2 | 5 | 8 | 11 | 14 | → | n |

**Each term moves on 2!**

# AF: Terms of a Sequence

5/6c

| First Term | | | | | | | nth Term |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | → | 10 | n |
| | | | | | → | | |

First Term is _____

Step Size is _____

10th Term will be _____

nth Term will be _____

Hint: Compare the sequence to the step size times-table

# AF: Negative Sequence

5/6d

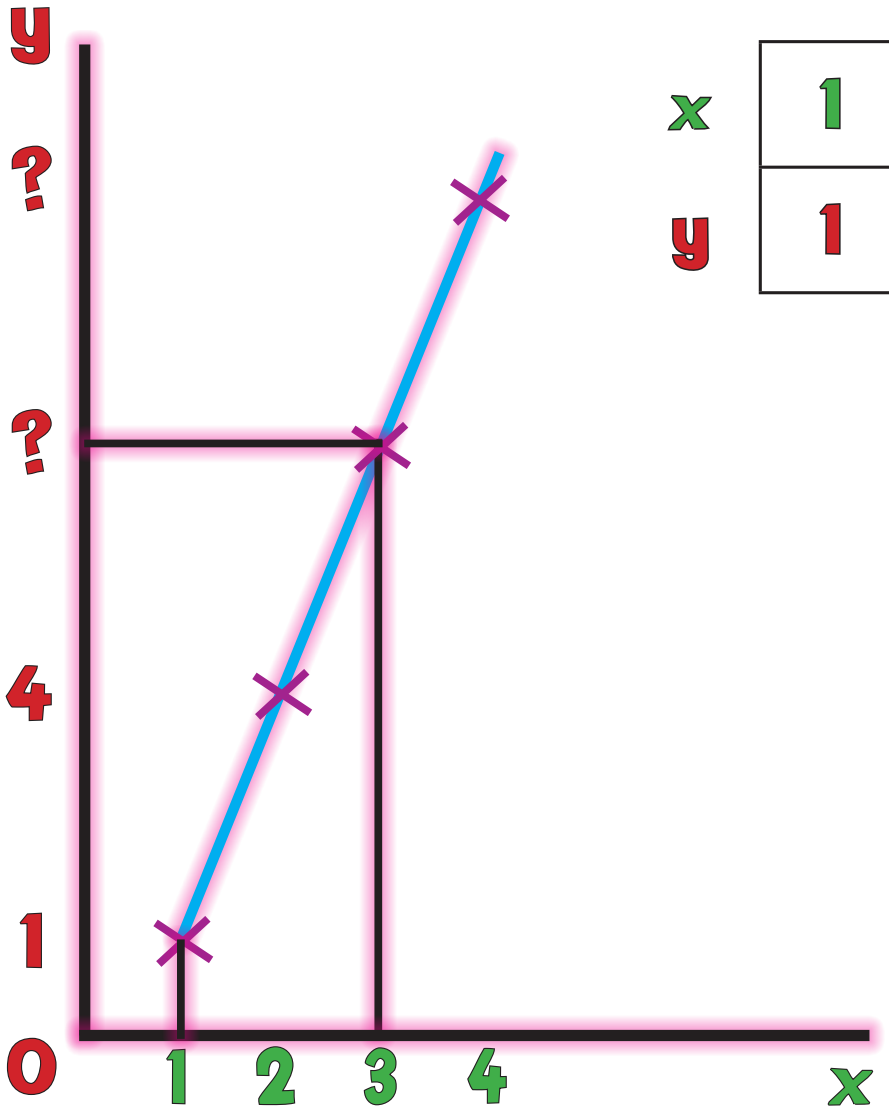
| x | 0 | 1 | 2 | 3 | 4 | 5 | → | 10 | n |
|---|---|---|---|---|---|---|---|---|---|
| y | 12 | 10 | 8 | 6 | 4 | 2 | → | | |

Counting back in 2's, starting at 10

$$y = -2x + 12$$

# AF: Graphing a Sequence

6a



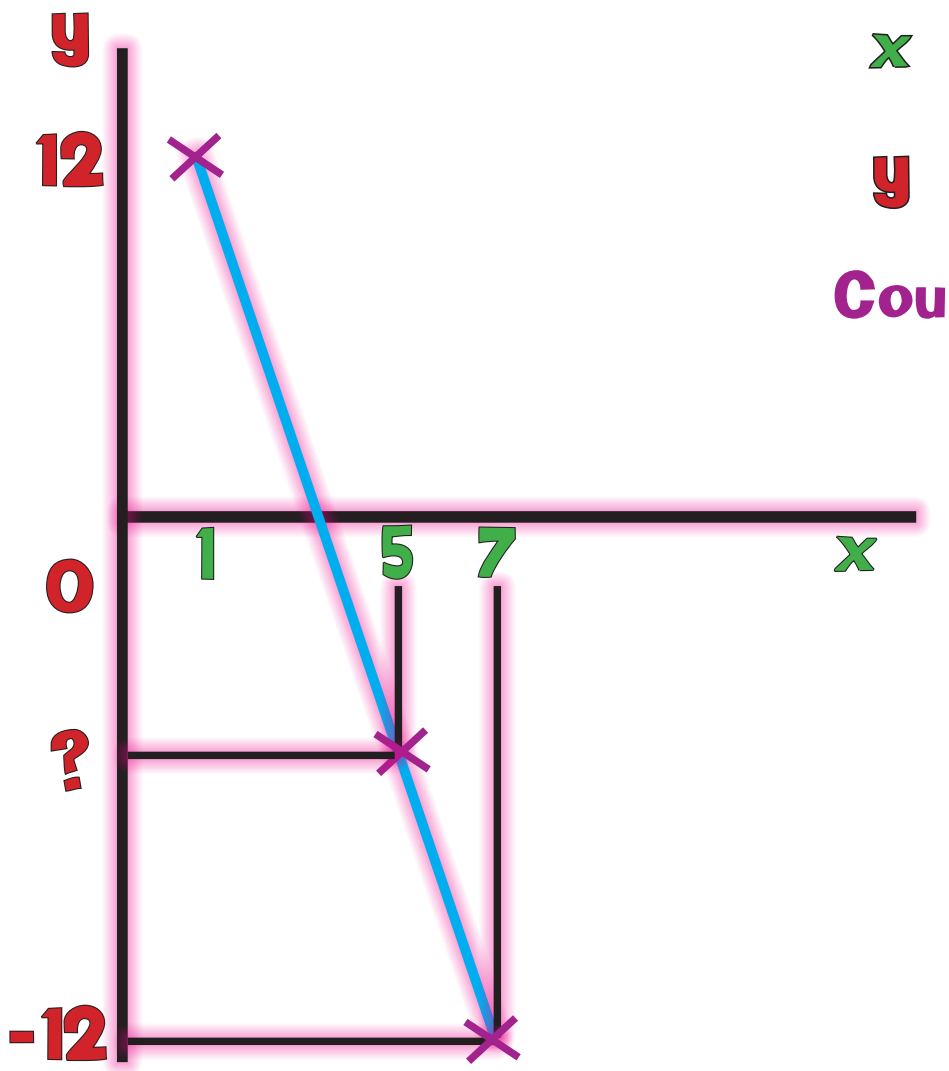

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| y | 1 | 4 | ? | ? | 13 | 16 | ? | ? |

Counting on in 3's, starting at 1

$$y = 3x - 2$$

# AF: Graphing a Sequence

6b



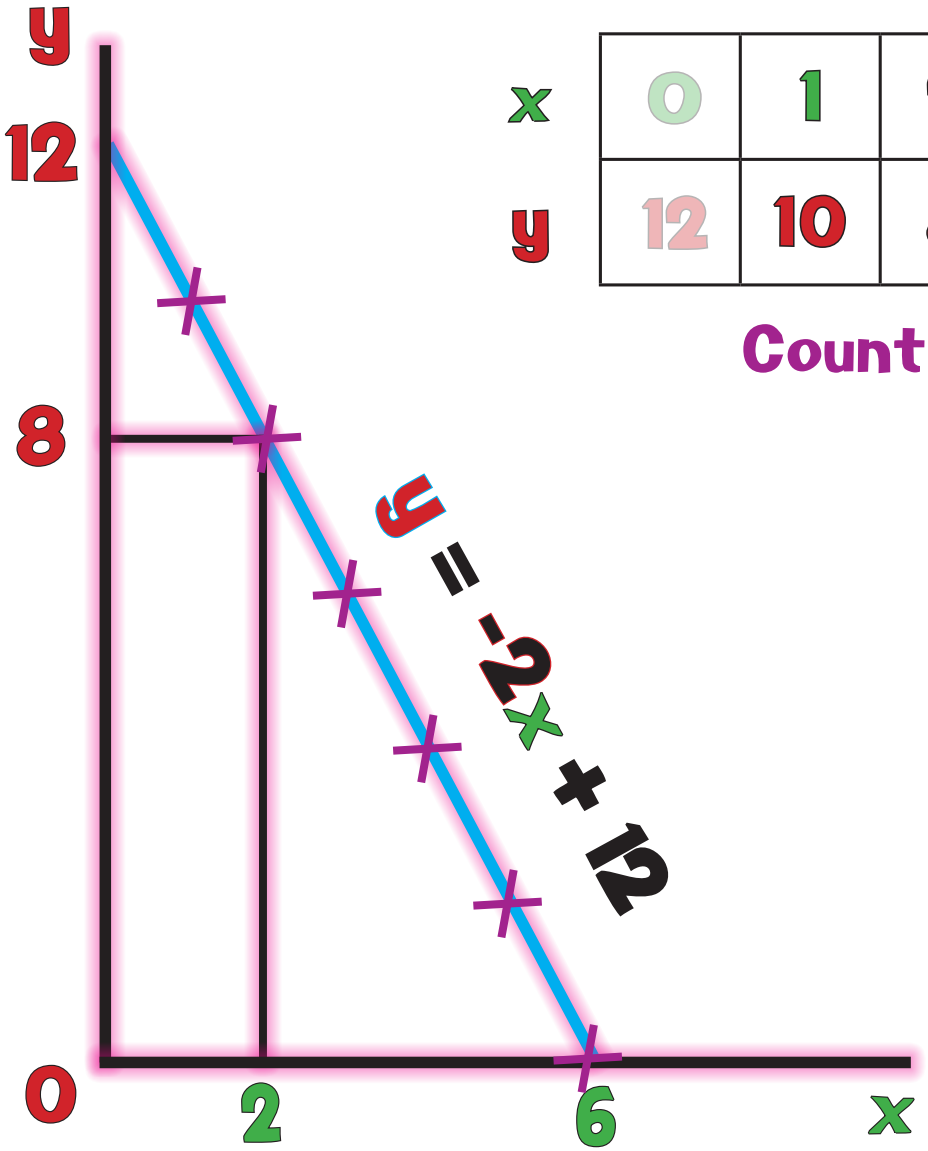

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| y | 12 | 8 | 4 | 0 | ? | ? | -12 |

Counting back in 4's, starting at 12

$$y = -4x + 16$$

# AF: Negative Sequence

6c



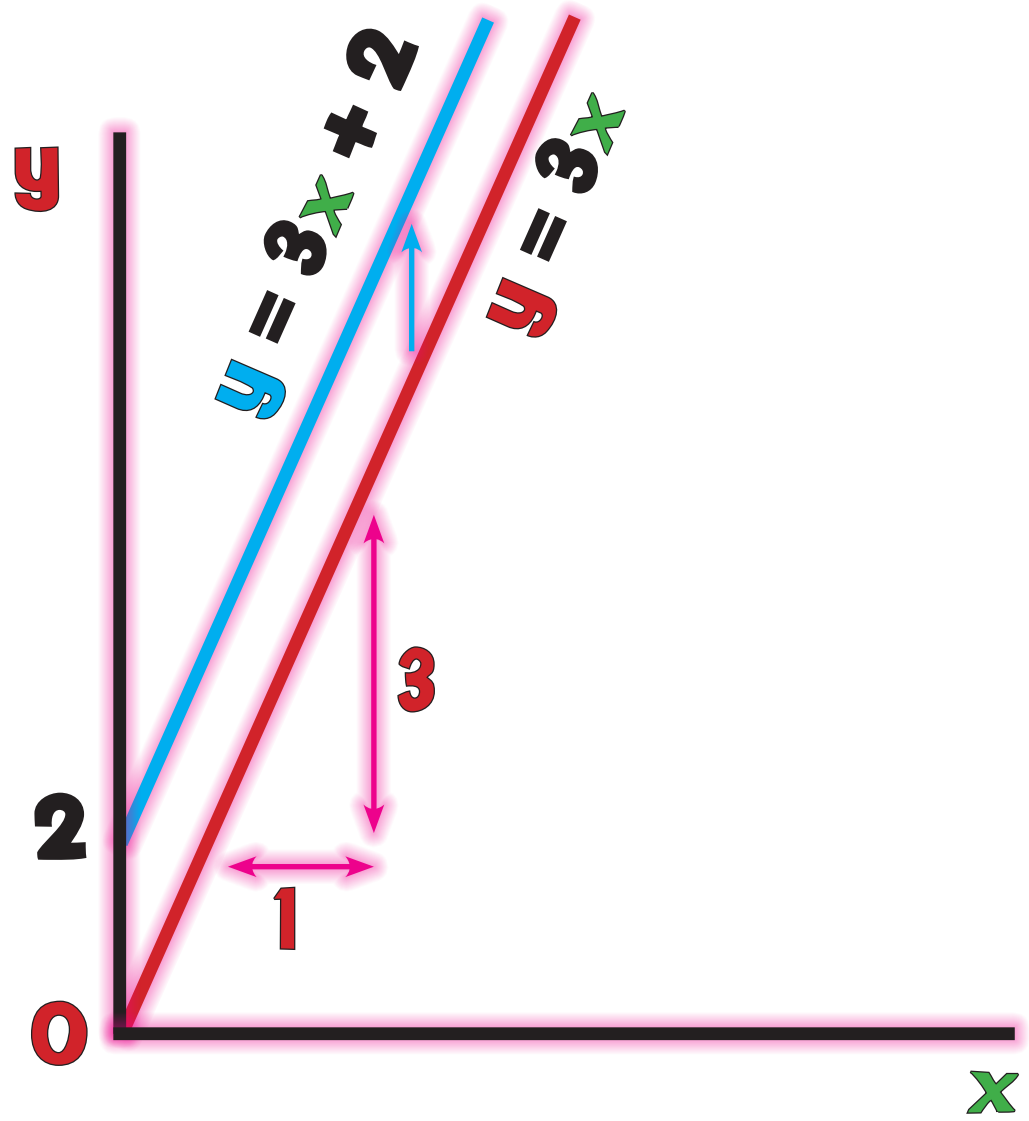

| x | 0 | 1 | 2 | 3 | 4 | 5 | → | 10 | n |
|---|---|---|---|---|---|---|---|---|---|
| y | 12 | 10 | 8 | 6 | 4 | 2 | → | | |

Counting back in 2's, starting at 10

$$y = -2x + 12$$

# AF: Connections

## 6d

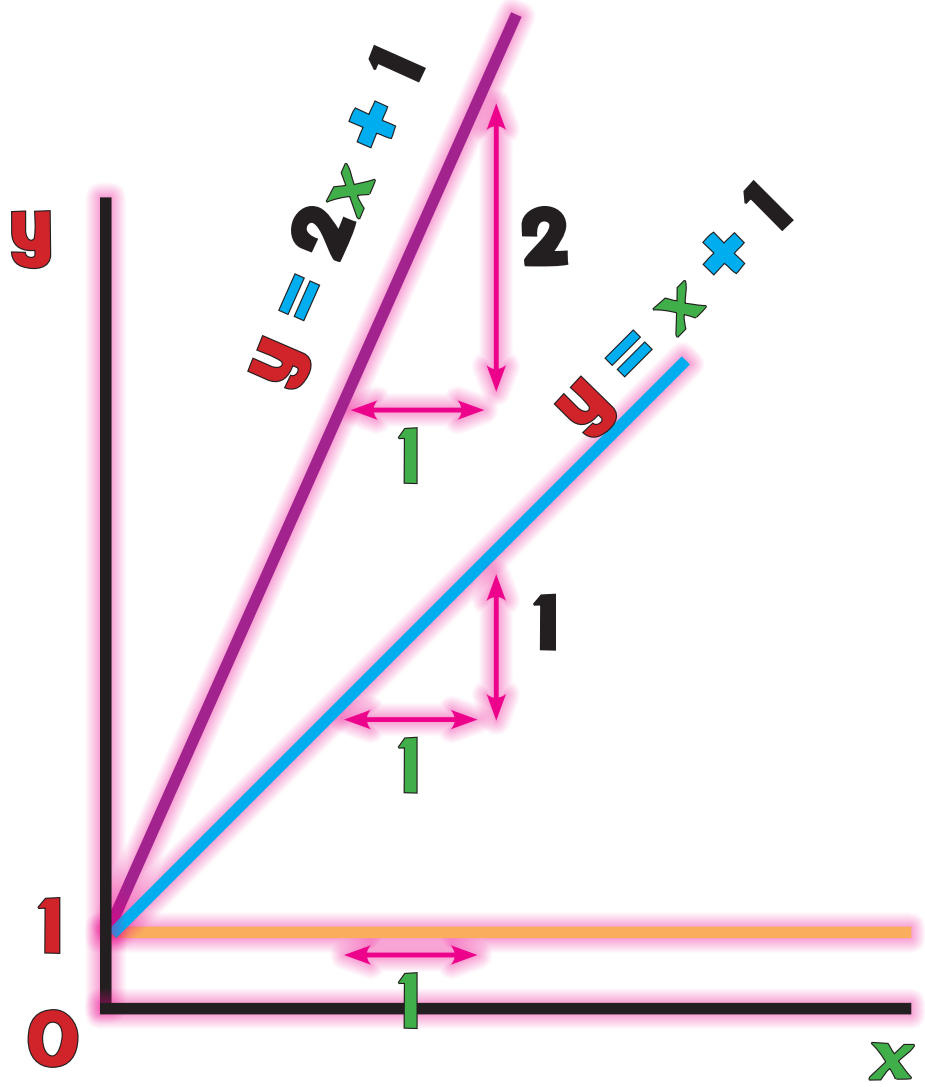



| x | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| y | 3 | 6 | 9 | 12 | 15 | 18 |
| y + 2 | 5 | 8 | 11 | 14 | 17 | 20 |

| x | x3 | y | +2 | y |
|---|---|---|---|---|
| 1 | → | 3 | → | 5 |
| 2 | → | 6 | → | 8 |
| 3 | → | 9 | → | 11 |
| 4 | → | 12 | → | 14 |
| 5 | → | 15 | → | 17 |
| 6 | → | 18 | → | 20 |

# AF: $y = mx + c$

6e




$y = mx + c$

If m is 0, c is 1 : $y = 1$

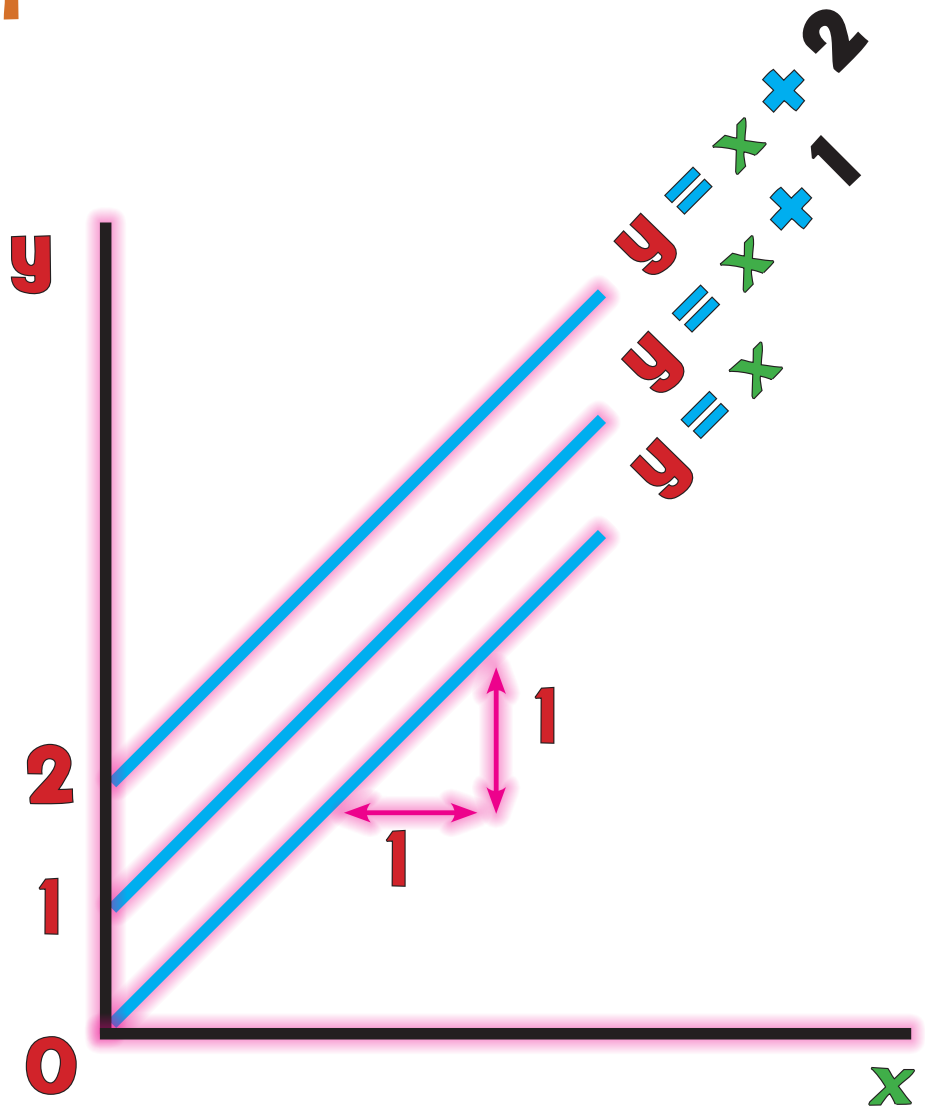
If m is 1, c is 1 : $y = x + 1$

If m is 2, c is 1 : $y = 2x + 1$

m = gradient
c = y intercept, when x is zero (zero term)

# AF: $y = mx + c$

6f




$y = mx + c$

If m is 1, c is 0 : $y = x$

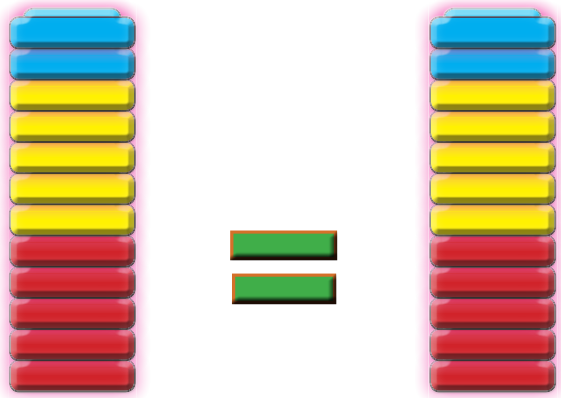
If m is 1, c is 1 : $y = x + 1$

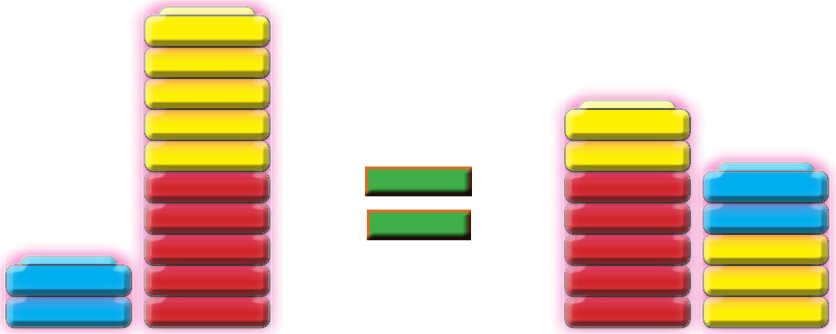
If m is 1, c is 2 : $y = x + 2$

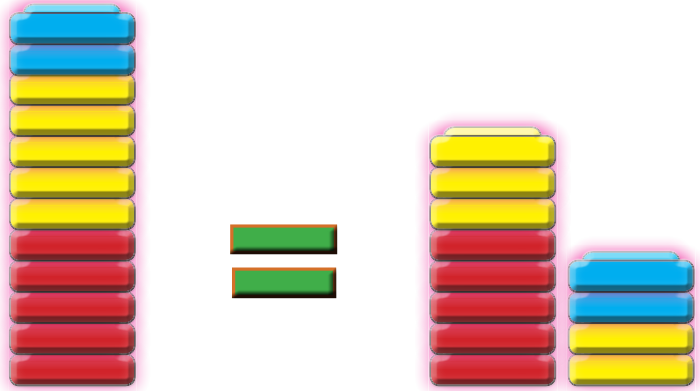
m = gradient
c = y intercept, when x is zero (zero term)

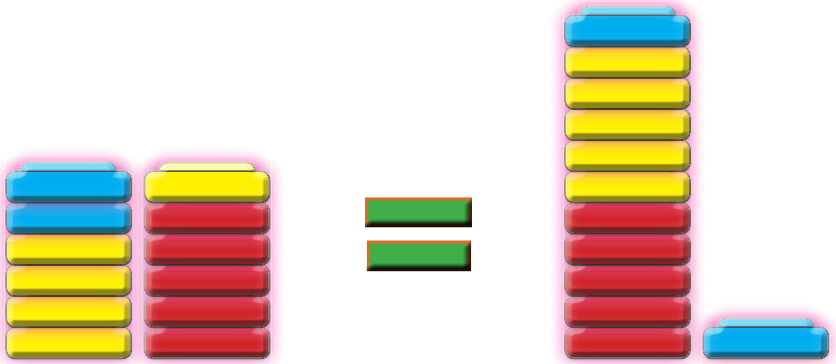
# AG: Balancing Stacks

1



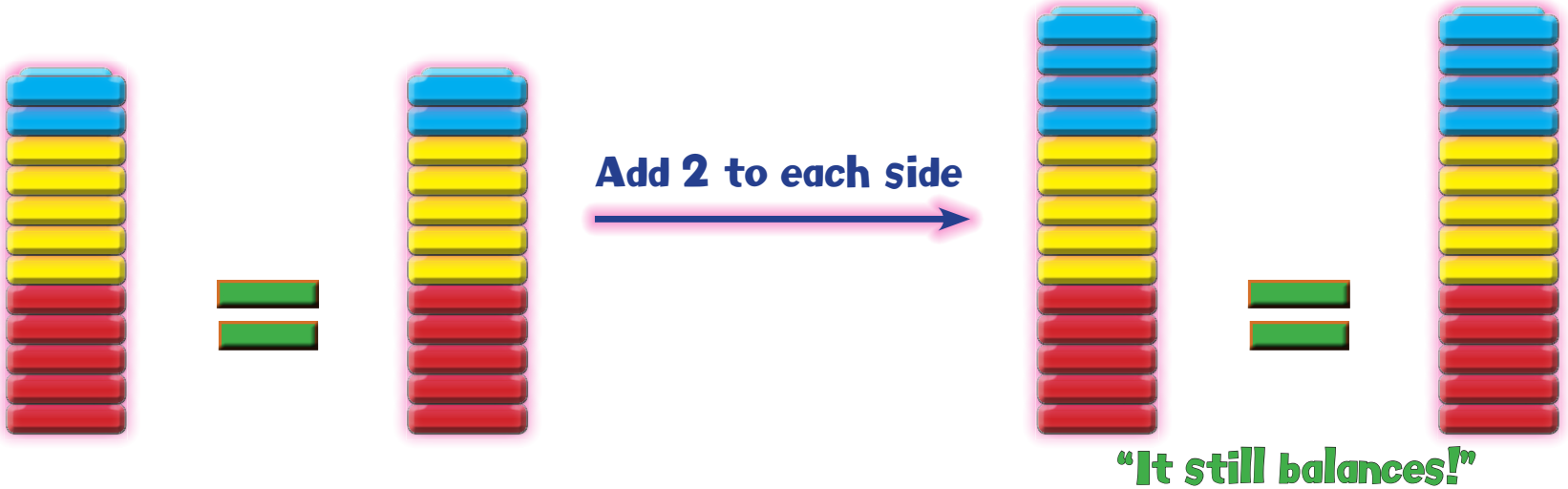


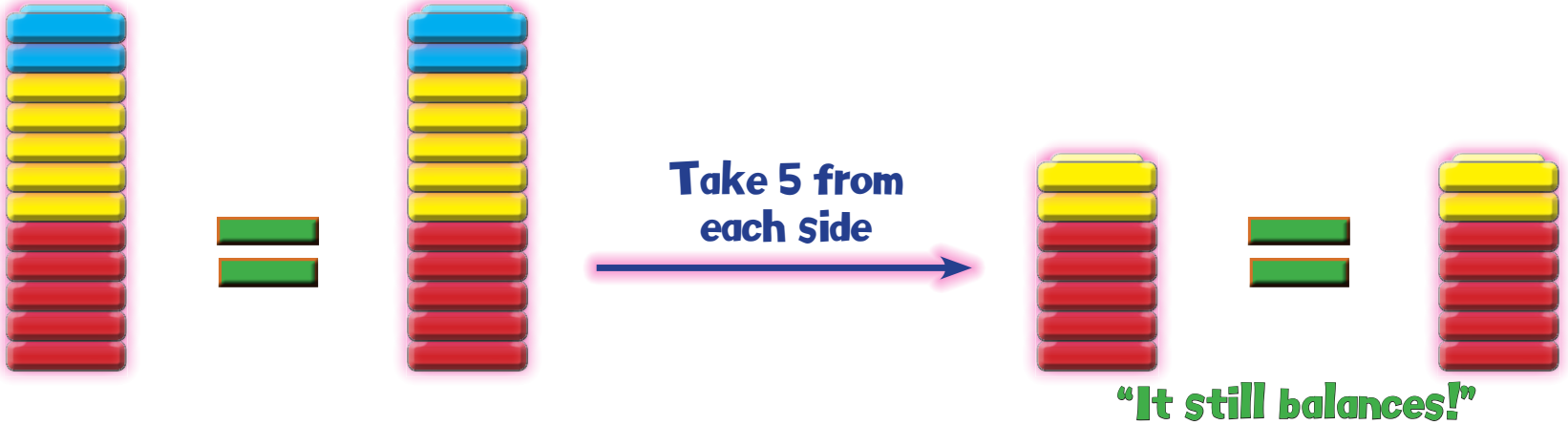




# AG: Balancing Stacks

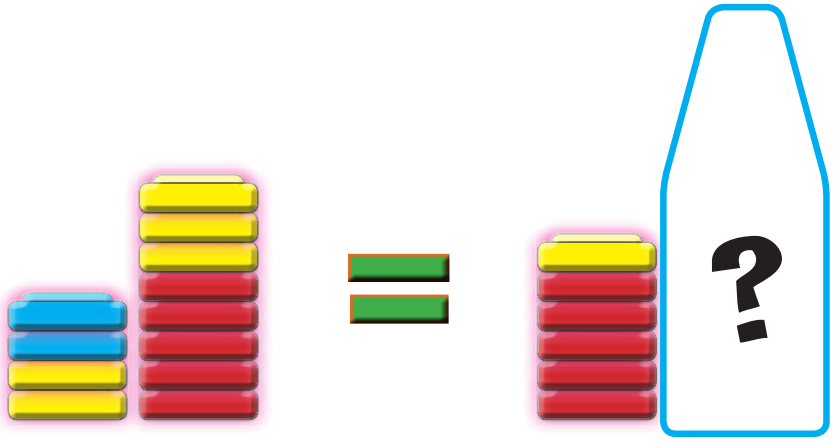
1/2

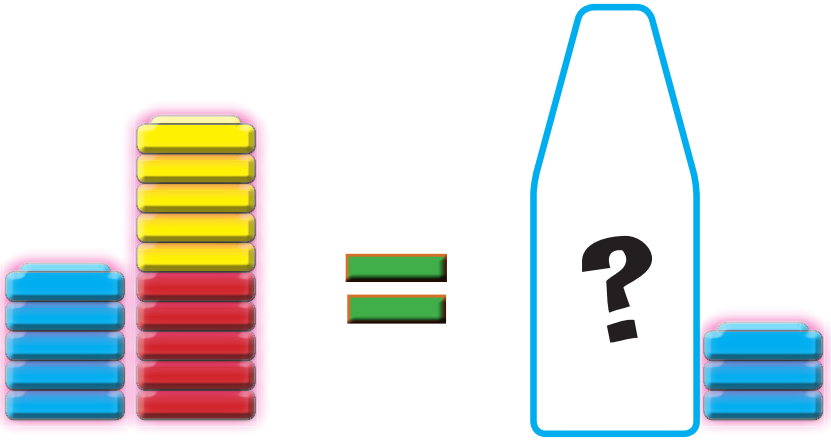


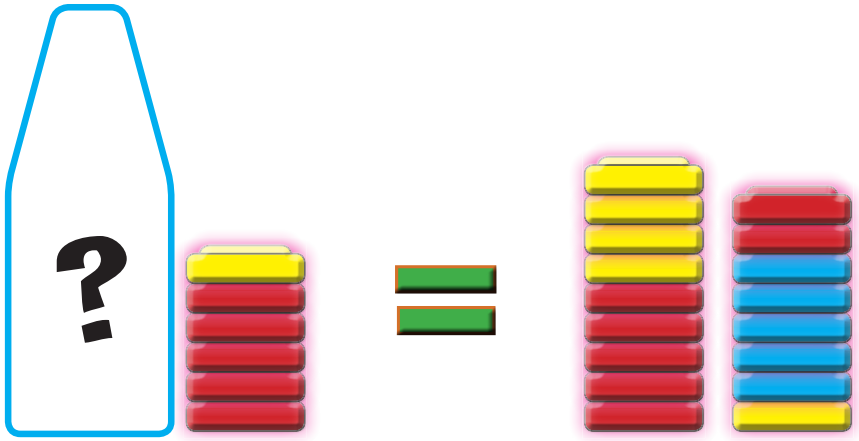



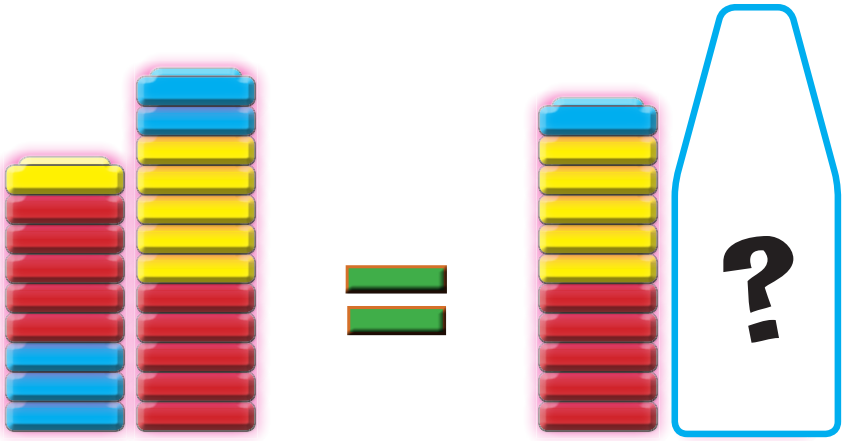
# AG: Balancing Stacks

3



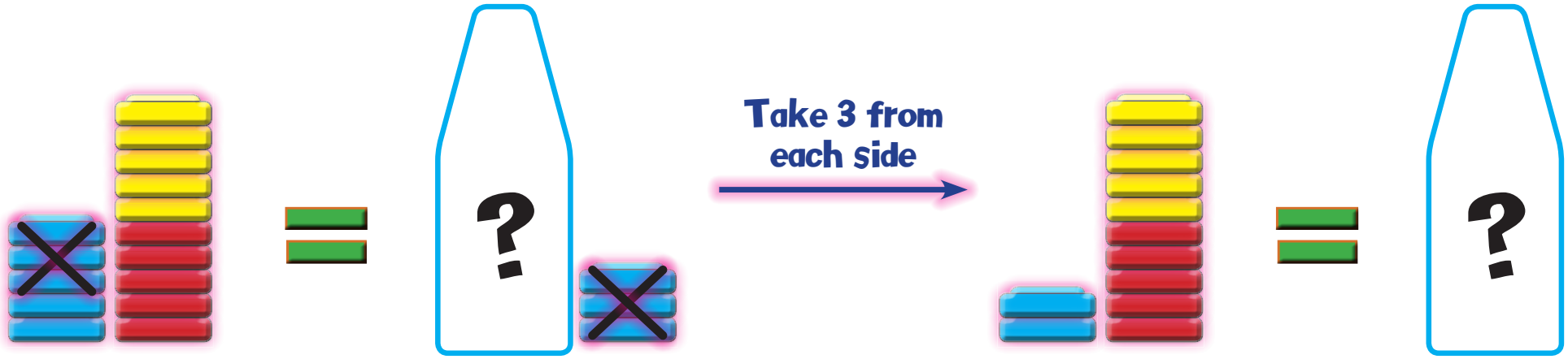



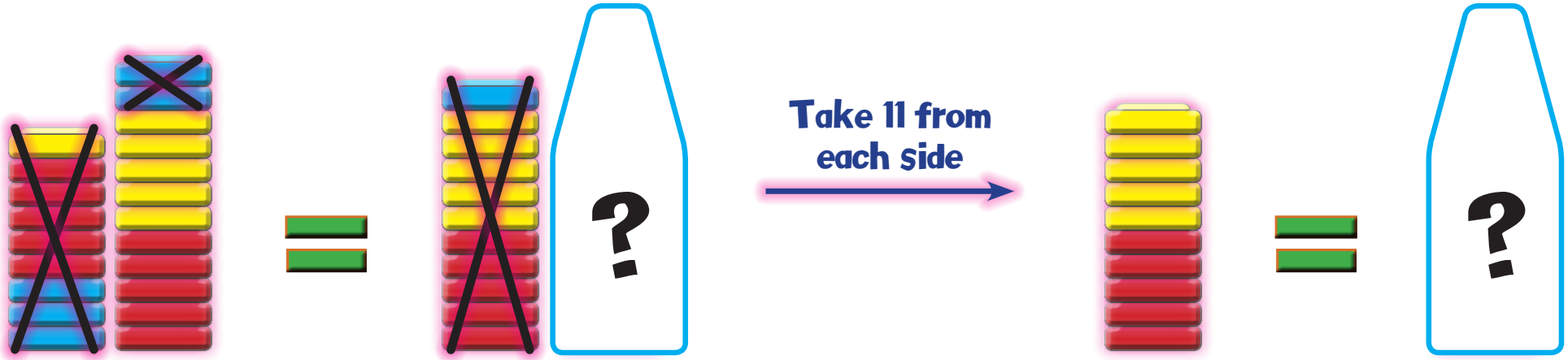



# AG: Balancing Stacks

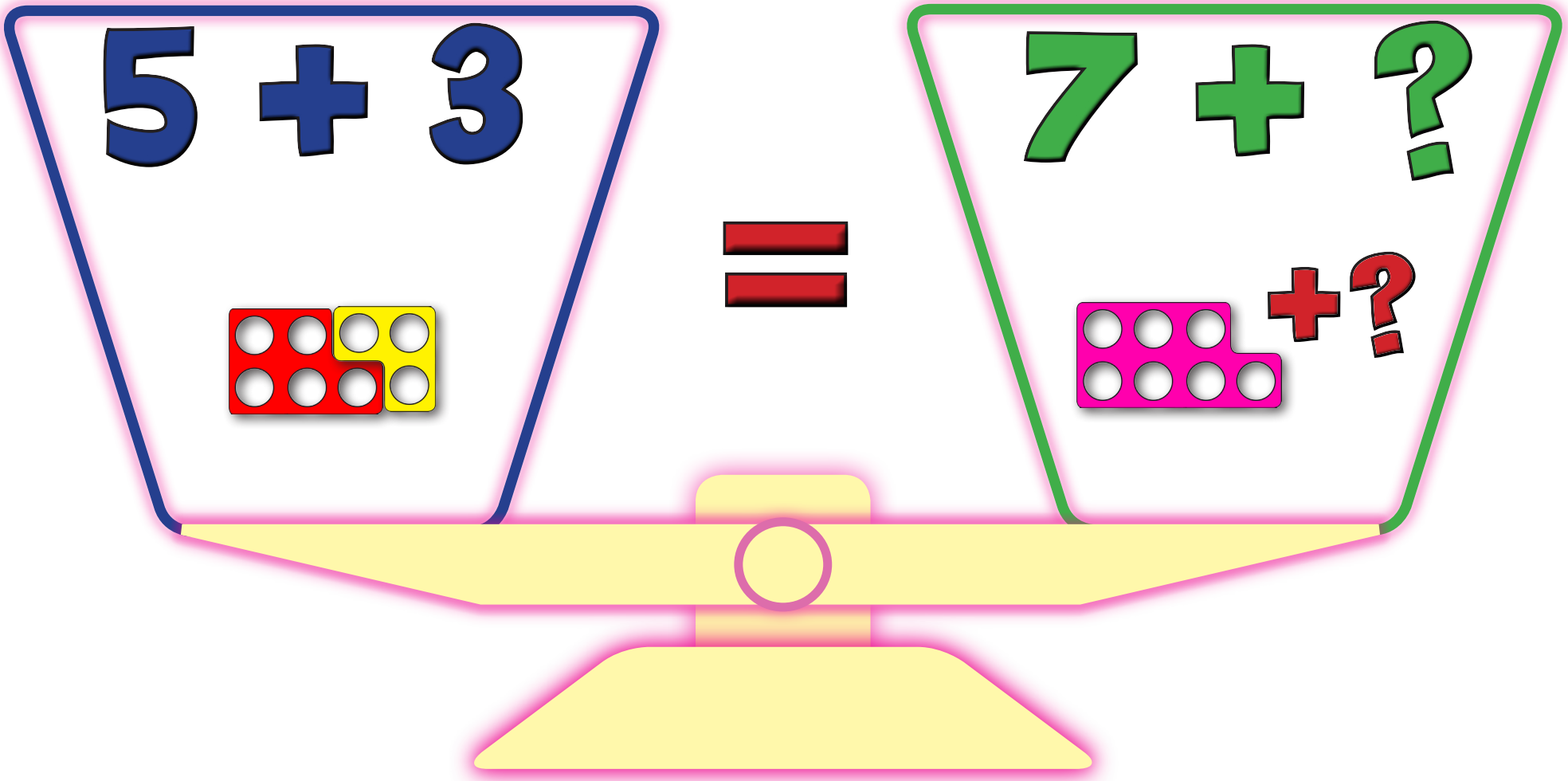
4



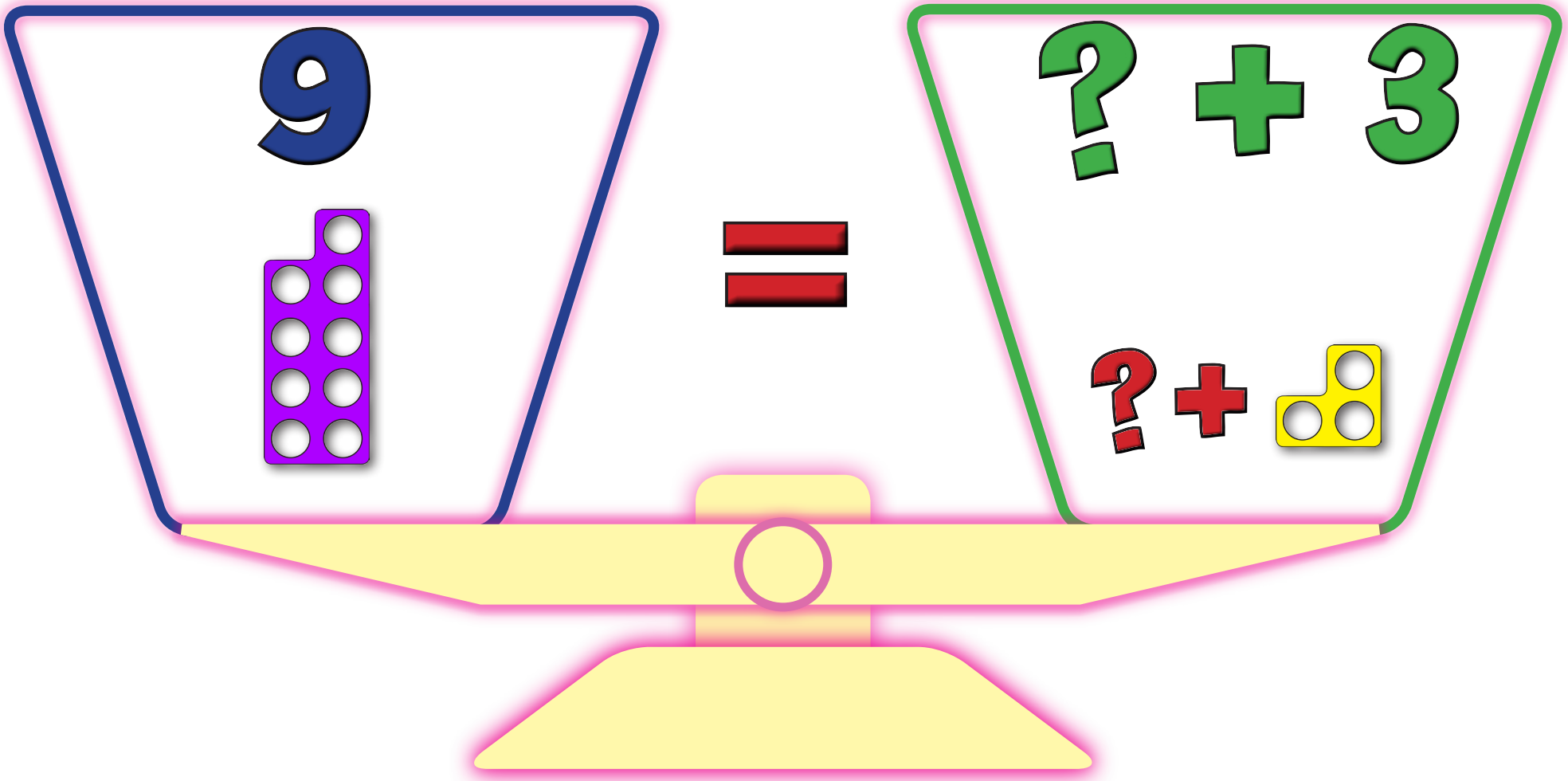
# AH: Balancing Equations

1a



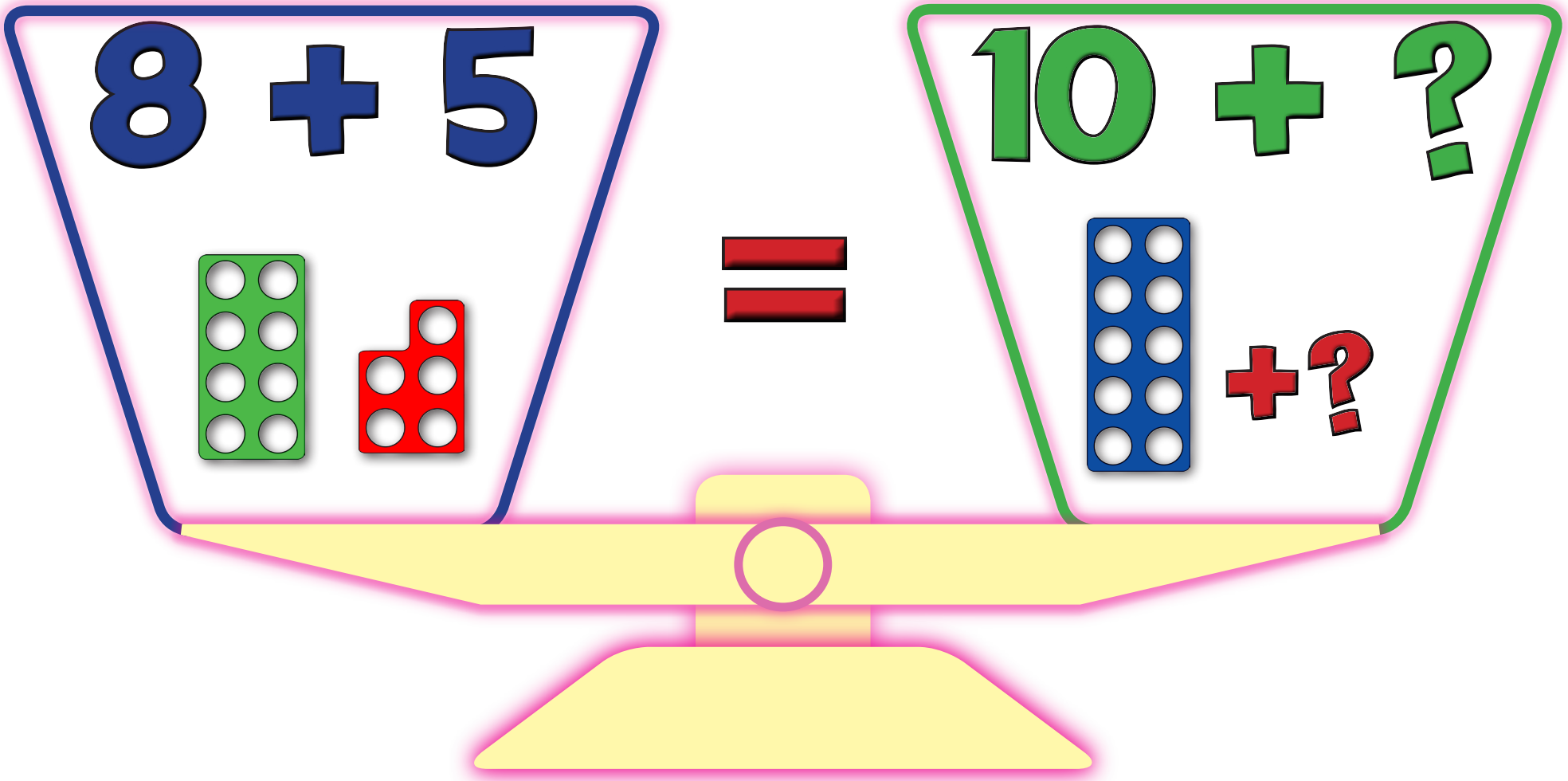
# AH: Balancing Equations

1b



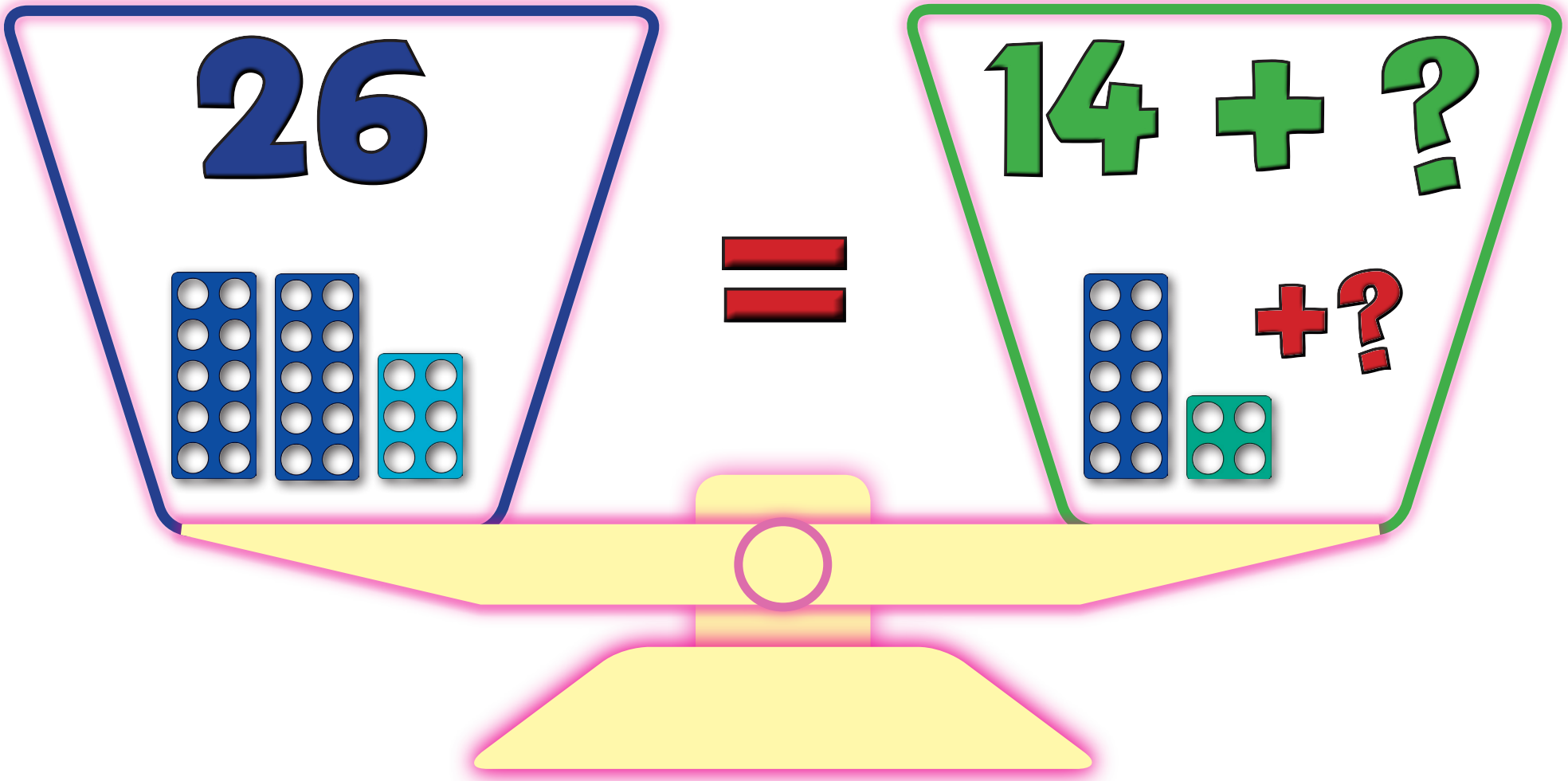
# AH: Balancing Equations

1c



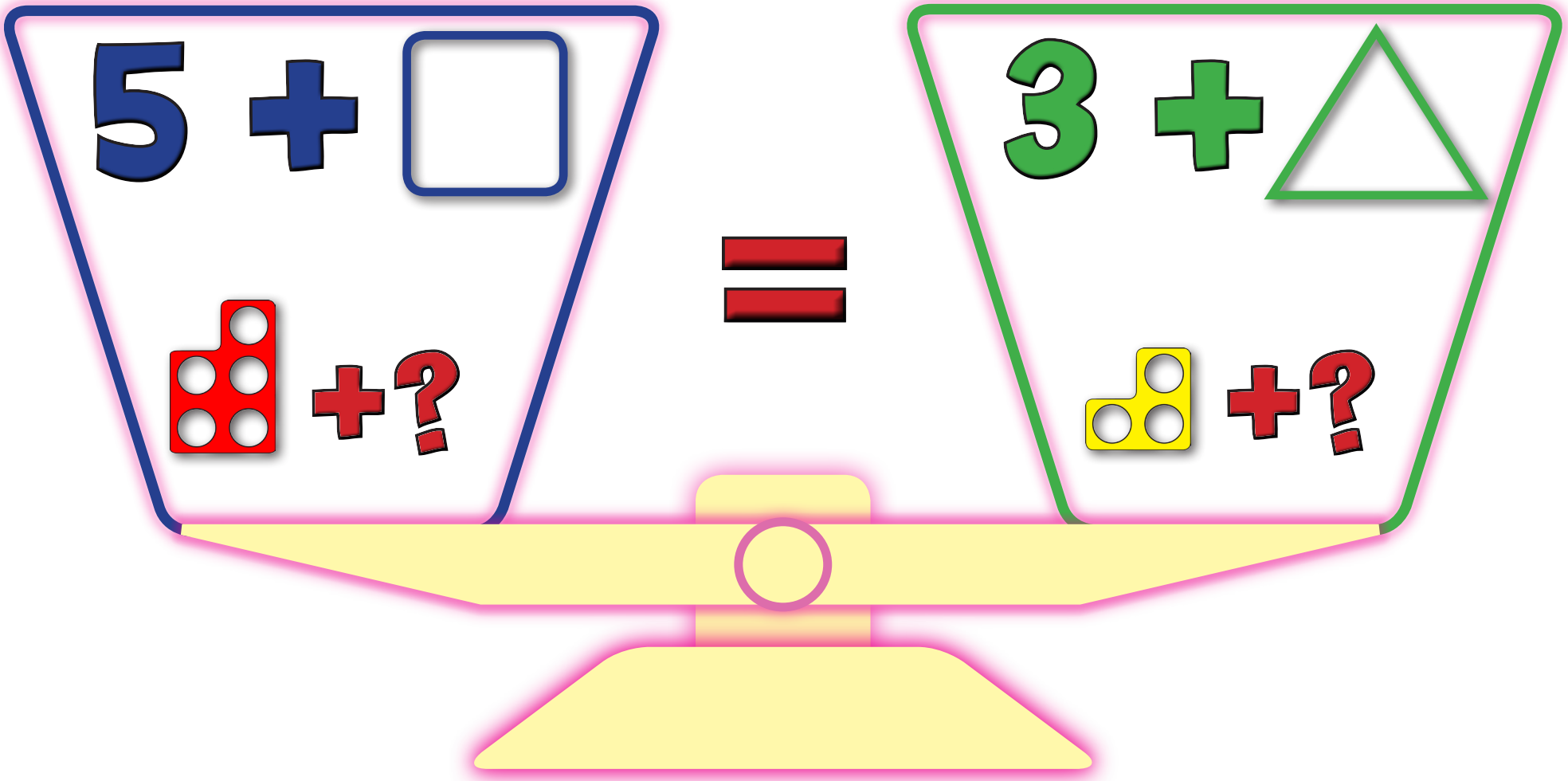
# AH: Balancing Equations

## 2a



# AH: Balancing Equations

## 2b

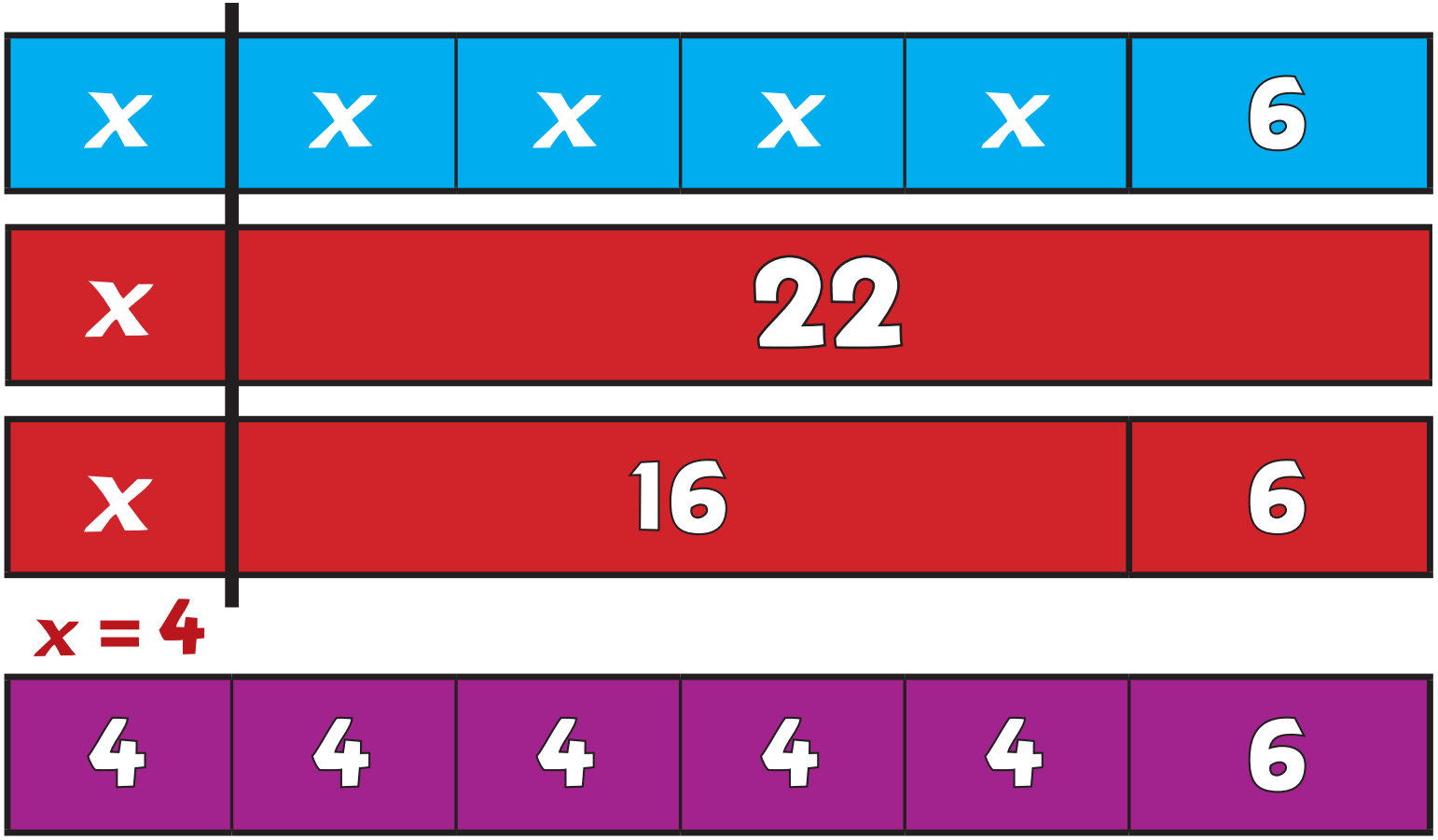


# AH: Balancing Linear Eqns.

6d

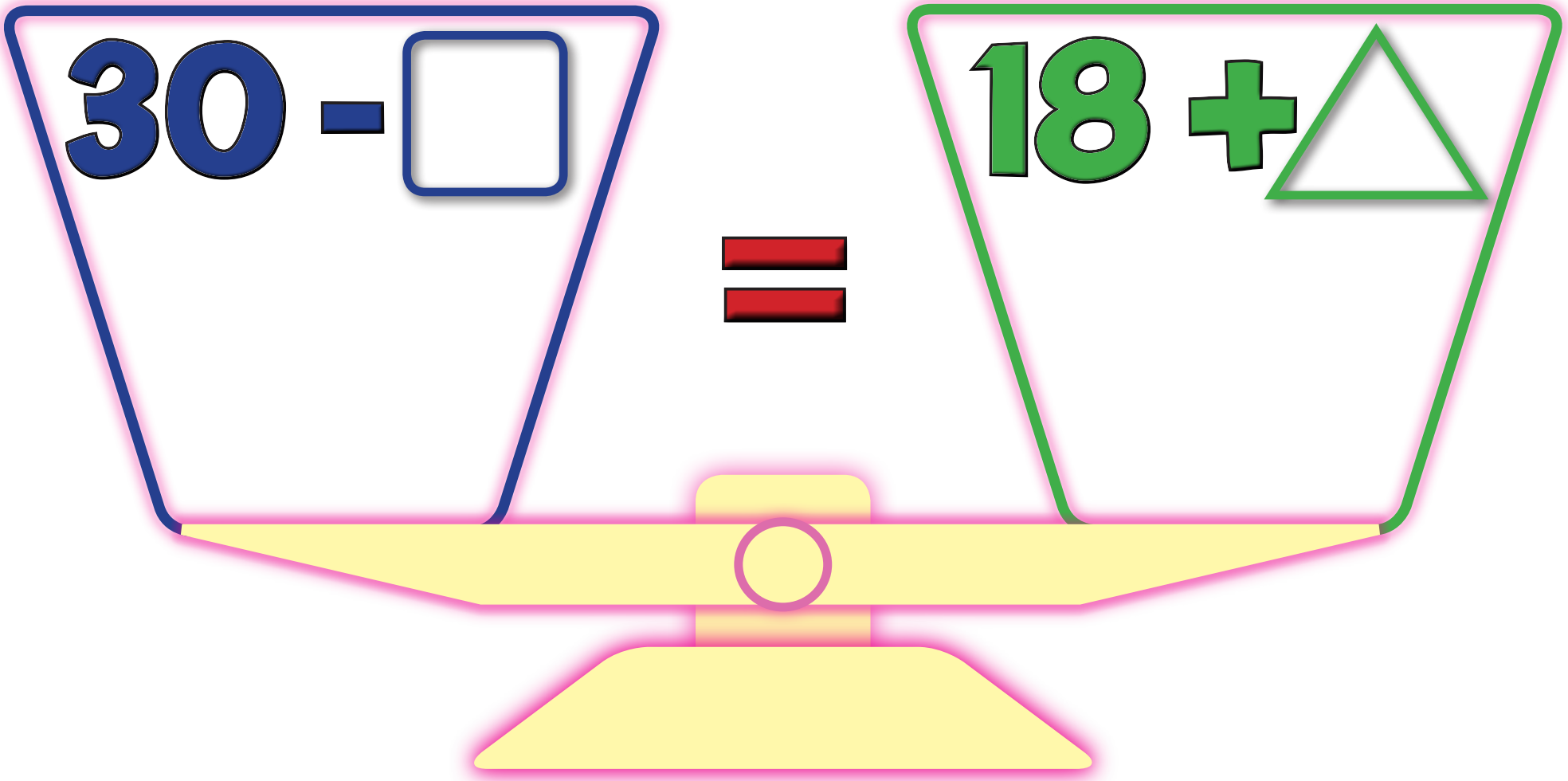
## Bar Model

$$5x + 6 = 22 + x$$



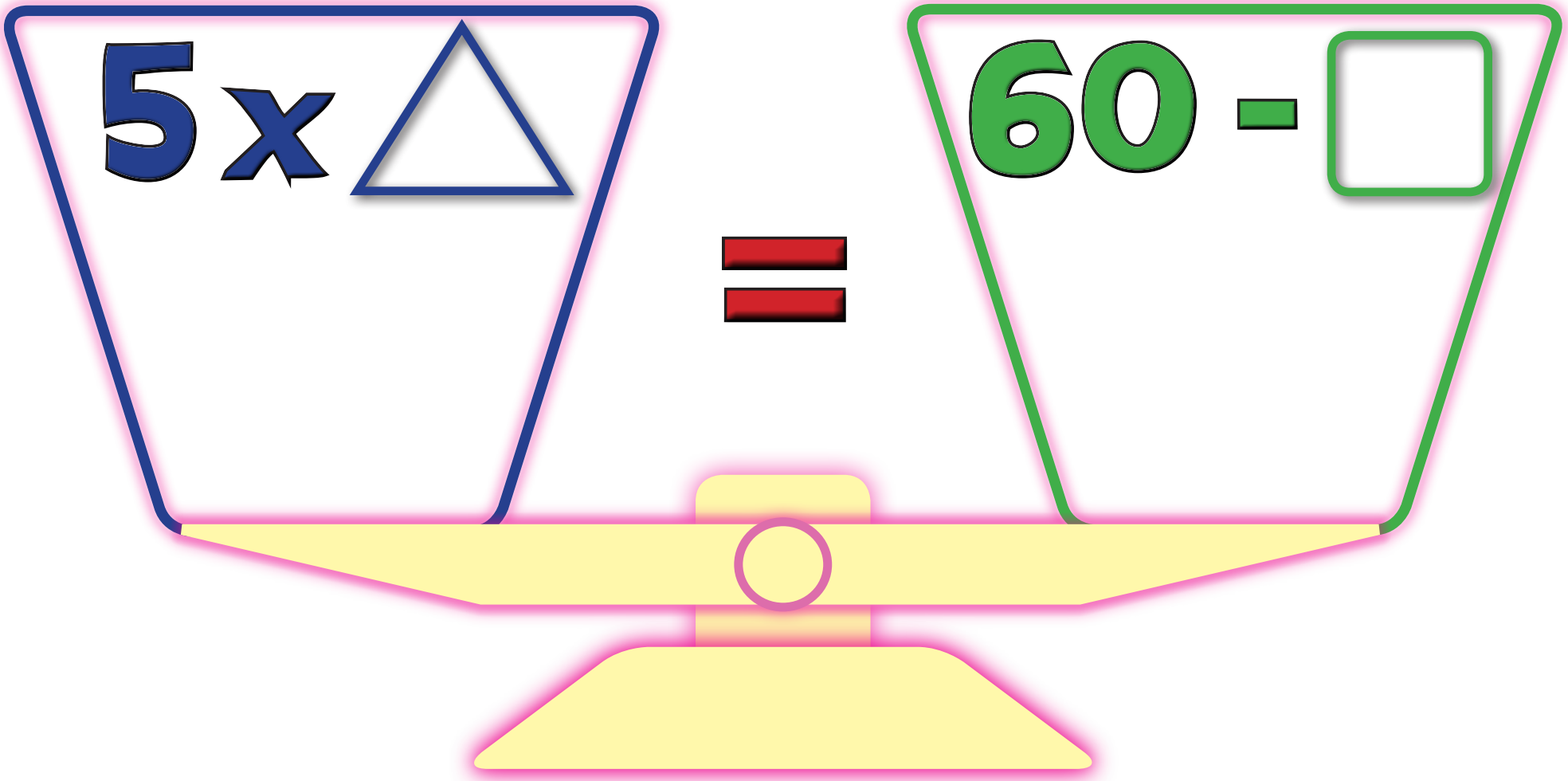
# AH: Balancing Equations

3



# AH: Balancing Equations

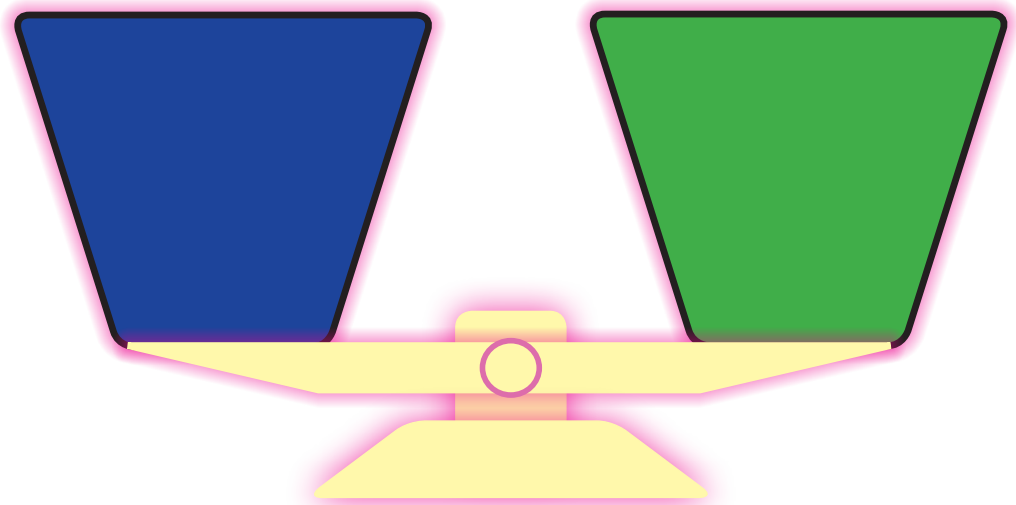
3/4



# AH: Balancing Equations

5a

$(10 \times \triangle) + 4 = 80 - \square$



# AH: Balancing Equations

5b

$(20 \times \triangle) + 30 = 90 - (10 \times \square)$

# AH: Balancing Equations

5c

$$5n + 10 = 58 - n$$

# AH: Balancing Linear Eqns.

## 6a Algebraic Notation

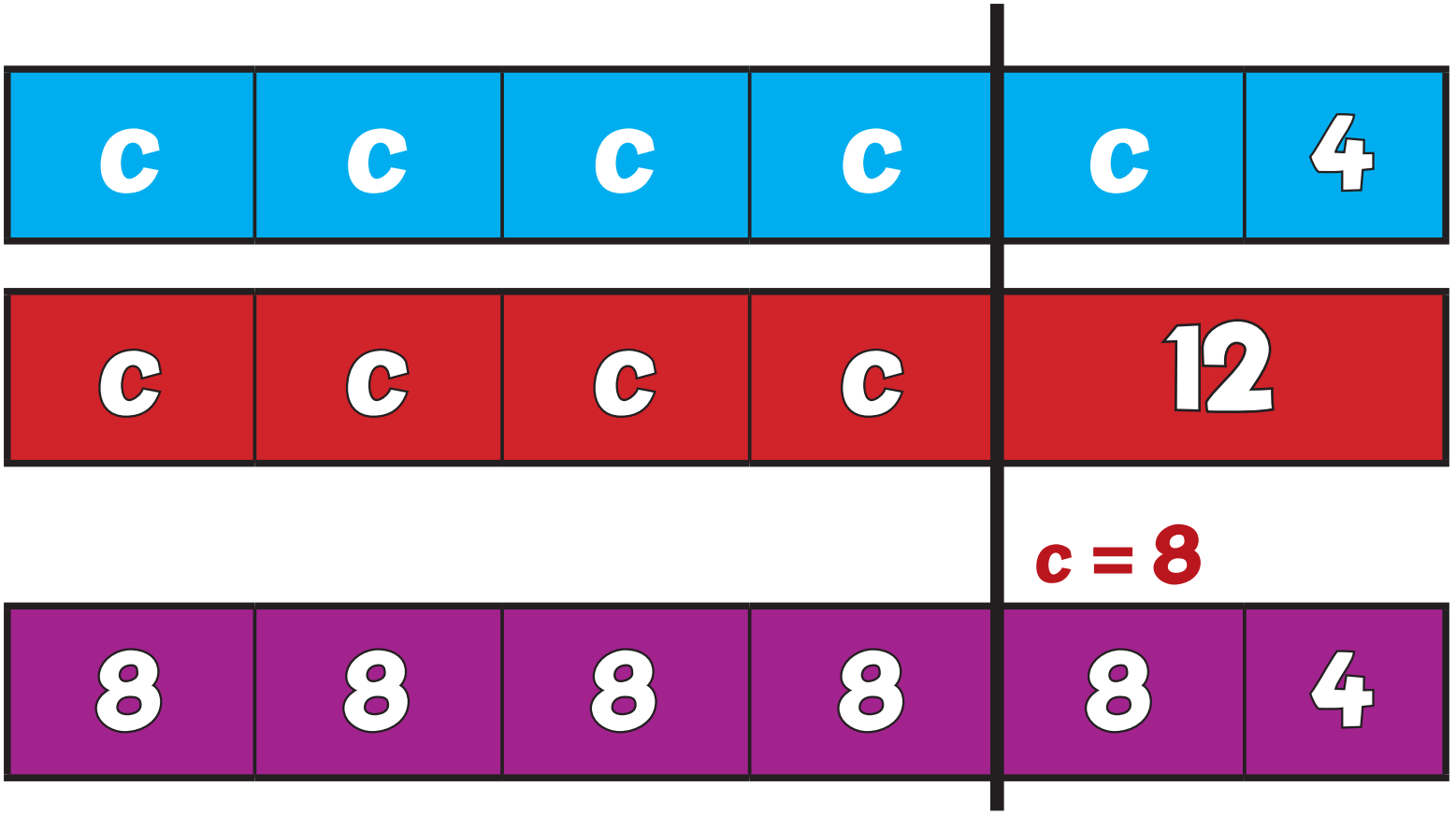
$$5c + 4 = 4c + 12$$
$$\quad\quad -4 \quad\quad\quad -4$$
$$5c = 4c + 8$$
$$-4c \quad\quad -4c$$
$$c = 8$$

# AH: Balancing Linear Eqns.

6b

## Bar Model

$$5c + 4 = 4c + 12$$



# AH: Balancing Linear Eqns.

6c

## Algebraic Notation

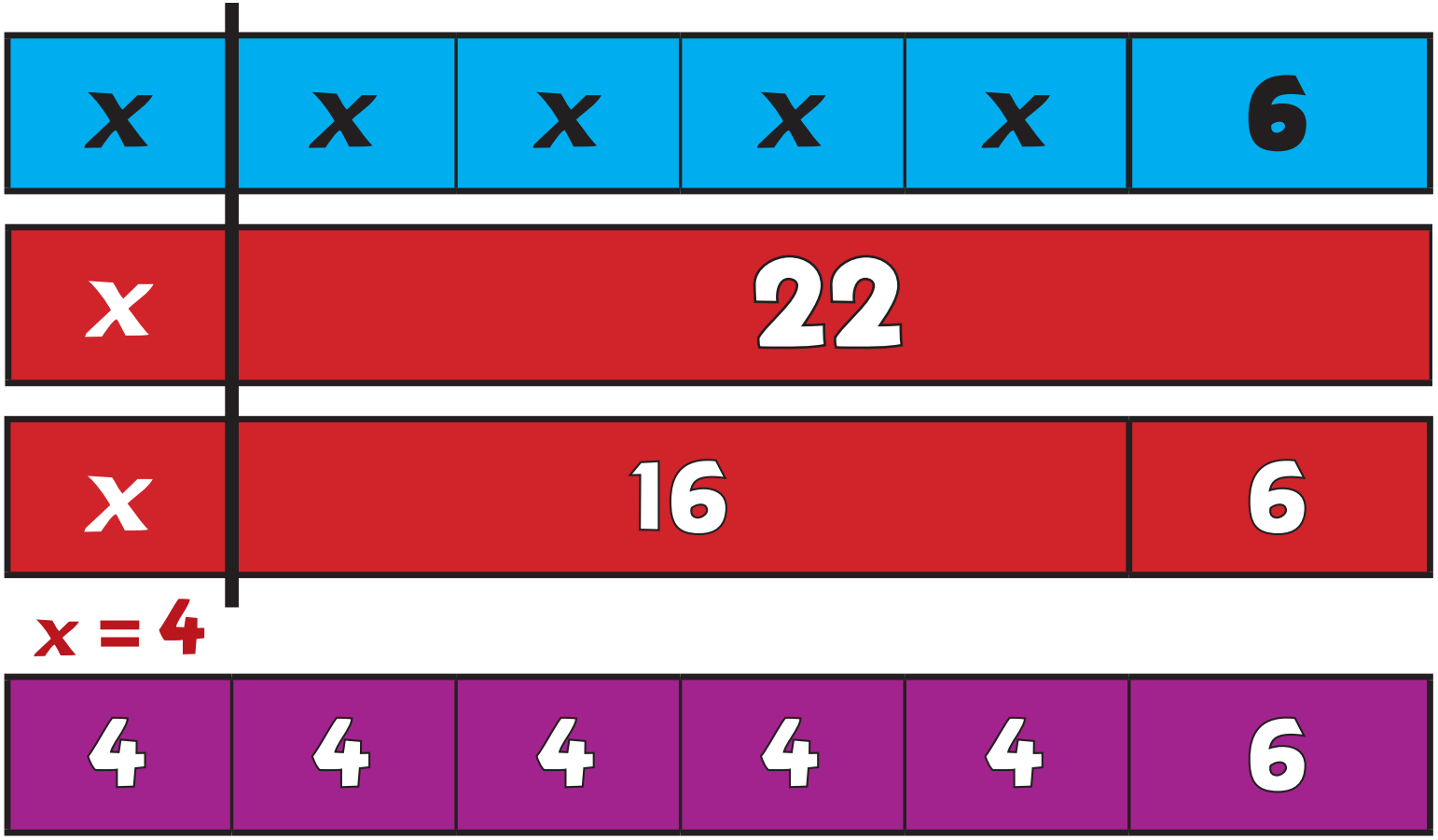
$$5x + 6 = 22 + x$$
$$-x \qquad\qquad -x$$
$$4x + 6 = 22$$
$$-6 \qquad -6$$
$$4x = 16$$
$$\div 4 \qquad \div 4$$
$$x = 4$$

# AF: Balancing Linear Eqns.

6d

## Bar Model

$$5x + 6 = 22 + x$$



# AH: Balancing Linear Eqns.

6e

## Algebraic Notation

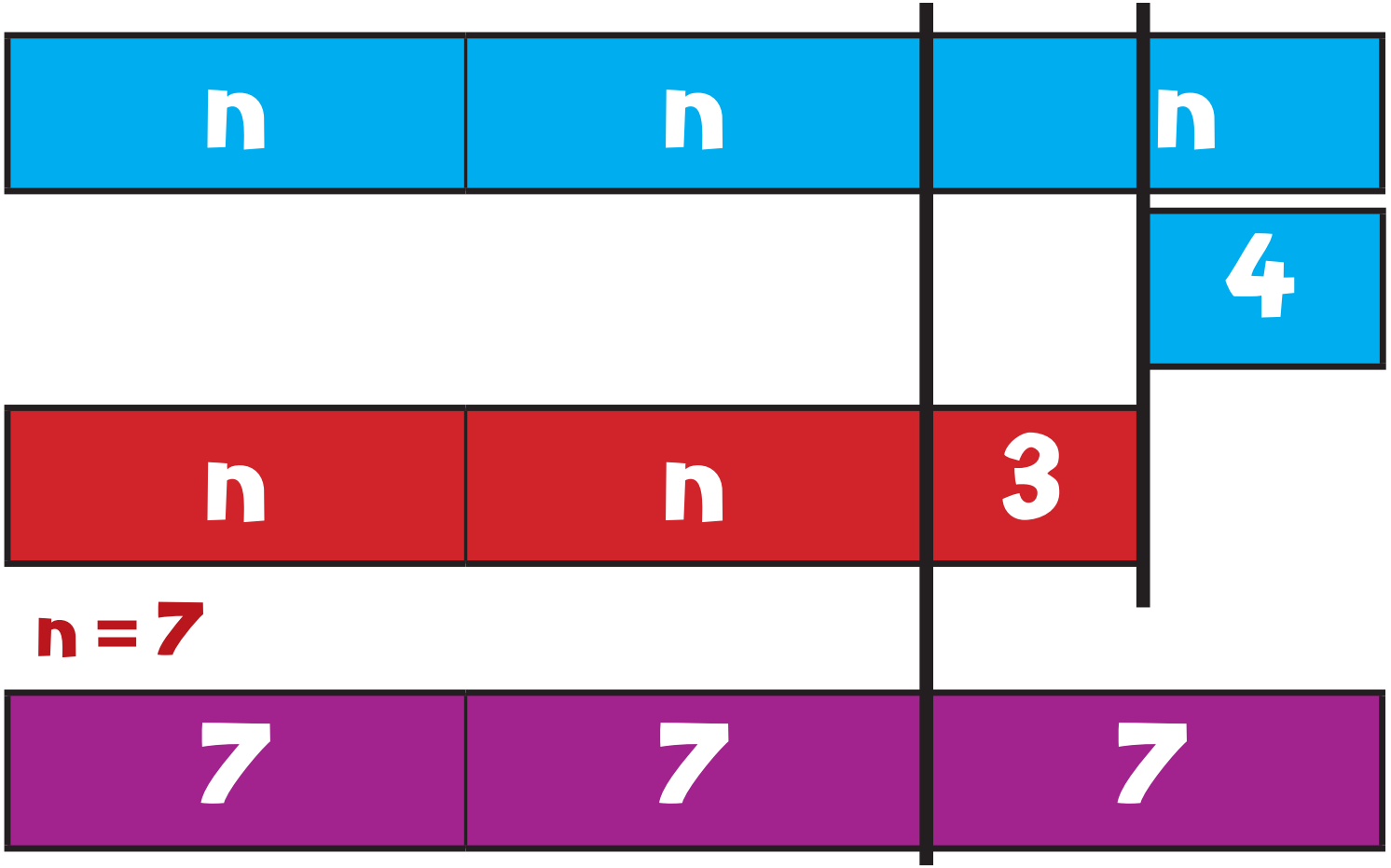
$$3n - 4 = 2n + 3$$
$$+4 \qquad +4$$
$$3n = 2n + 7$$
$$-2n \qquad -2n$$
$$n = 7$$

# AH: Balancing Linear Eqns.

6f

## Bar Model

$3n - 4 = 2n + 3$



# AH: Balancing Linear Eqns.

6g

## Algebraic Notation

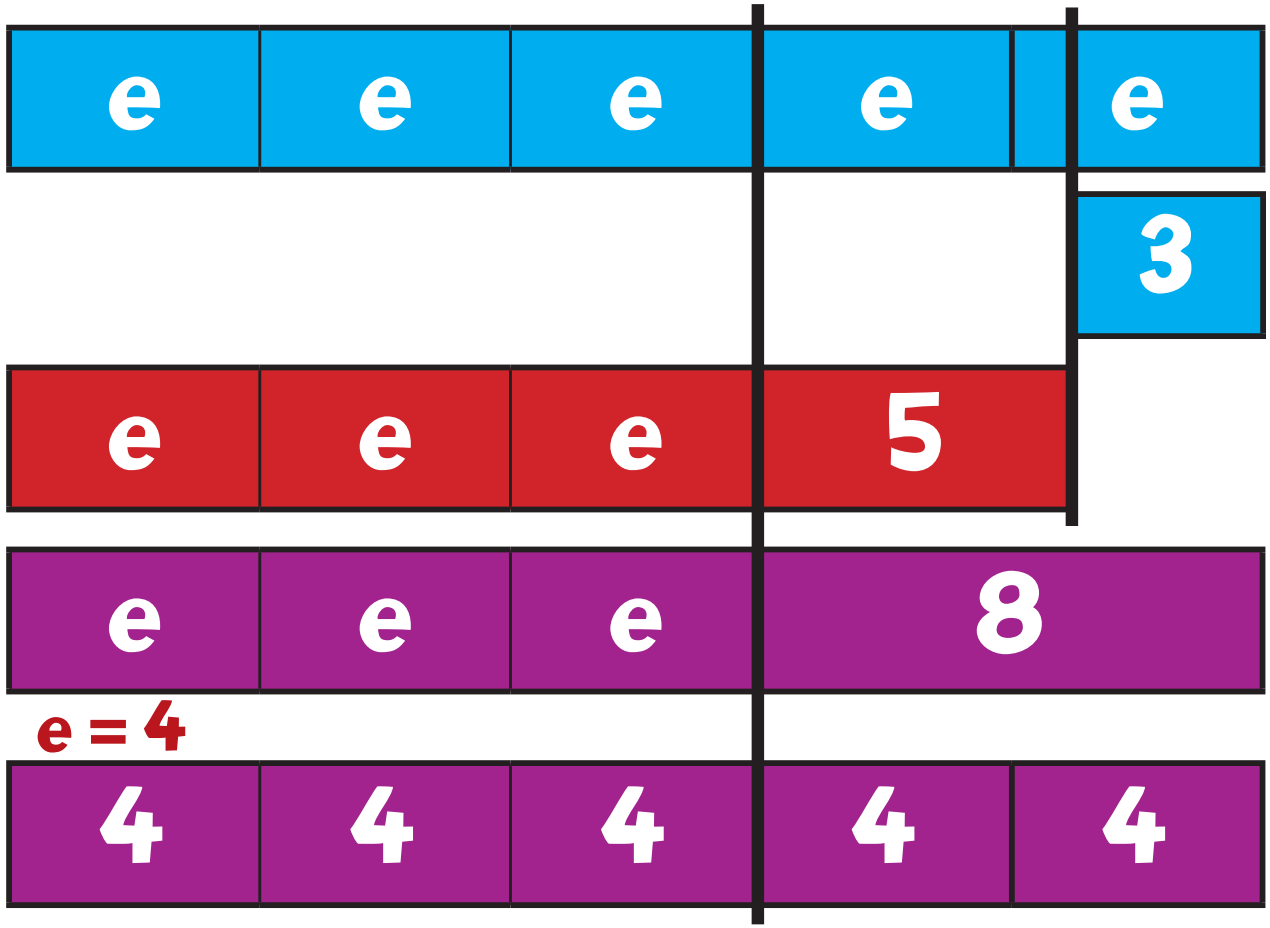
$$5e - 3 = 3e + 5$$
$$+3 \qquad +3$$
$$5e = 3e + 8$$
$$-3e \qquad -3e$$
$$2e = 8$$
$$\div 2 \qquad \div 2$$
$$e = 4$$

# AH: Balancing Linear Eqns.

6h

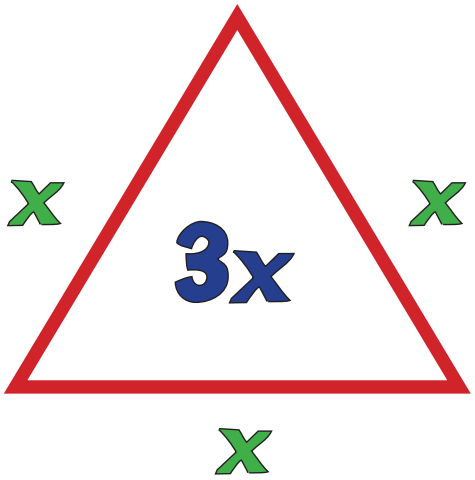
Bar Model

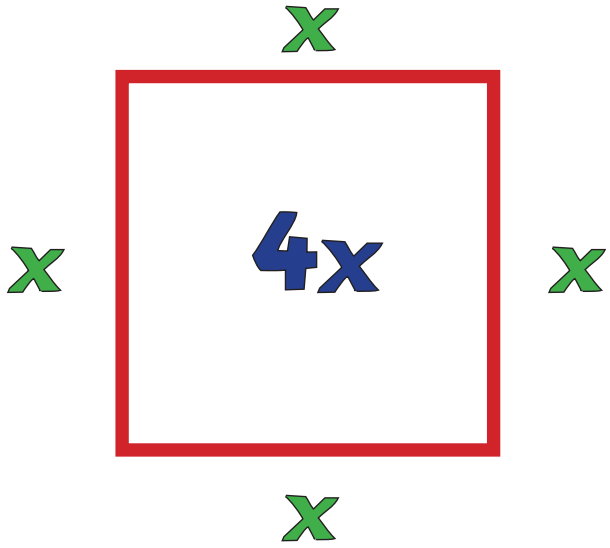
$5e - 3 = 3e + 5$

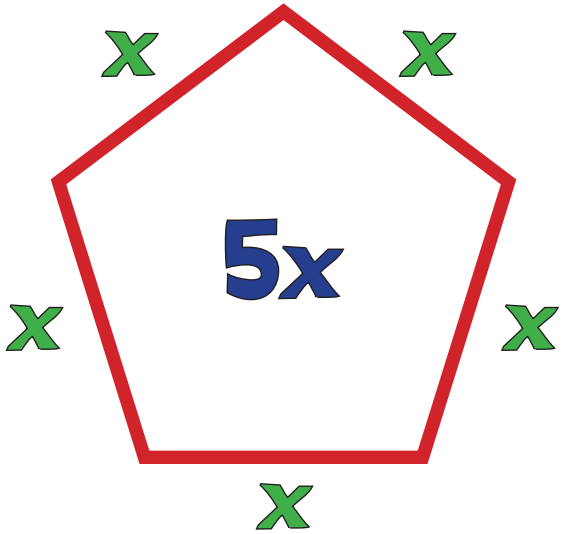


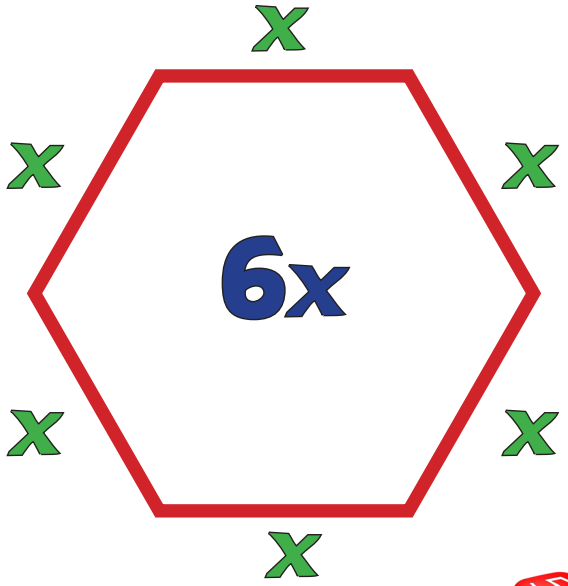
# A1: Formulae (Perimeter)

## 4a



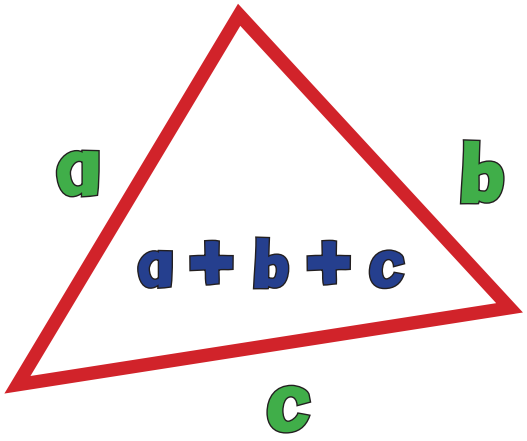



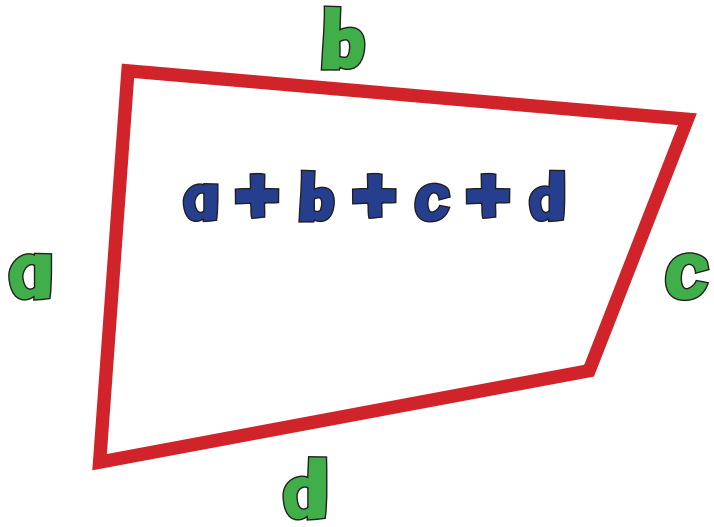



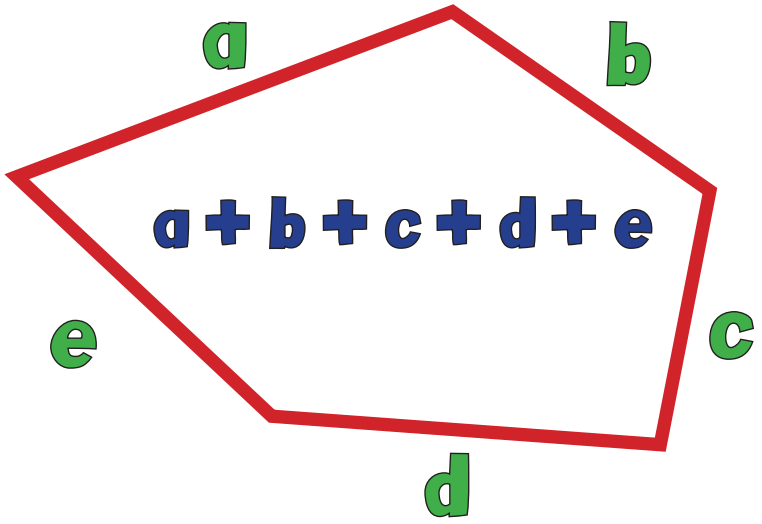



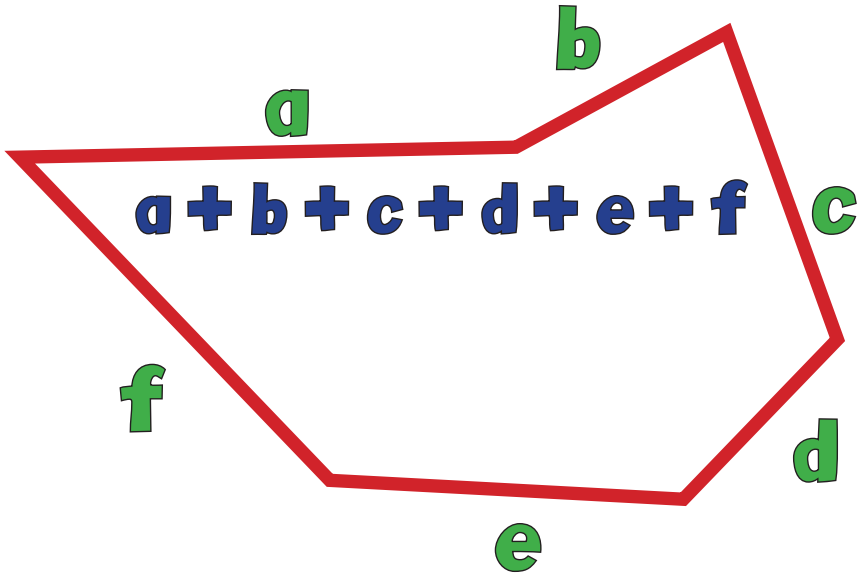
# A1: Formulae (Perimeter)

4b



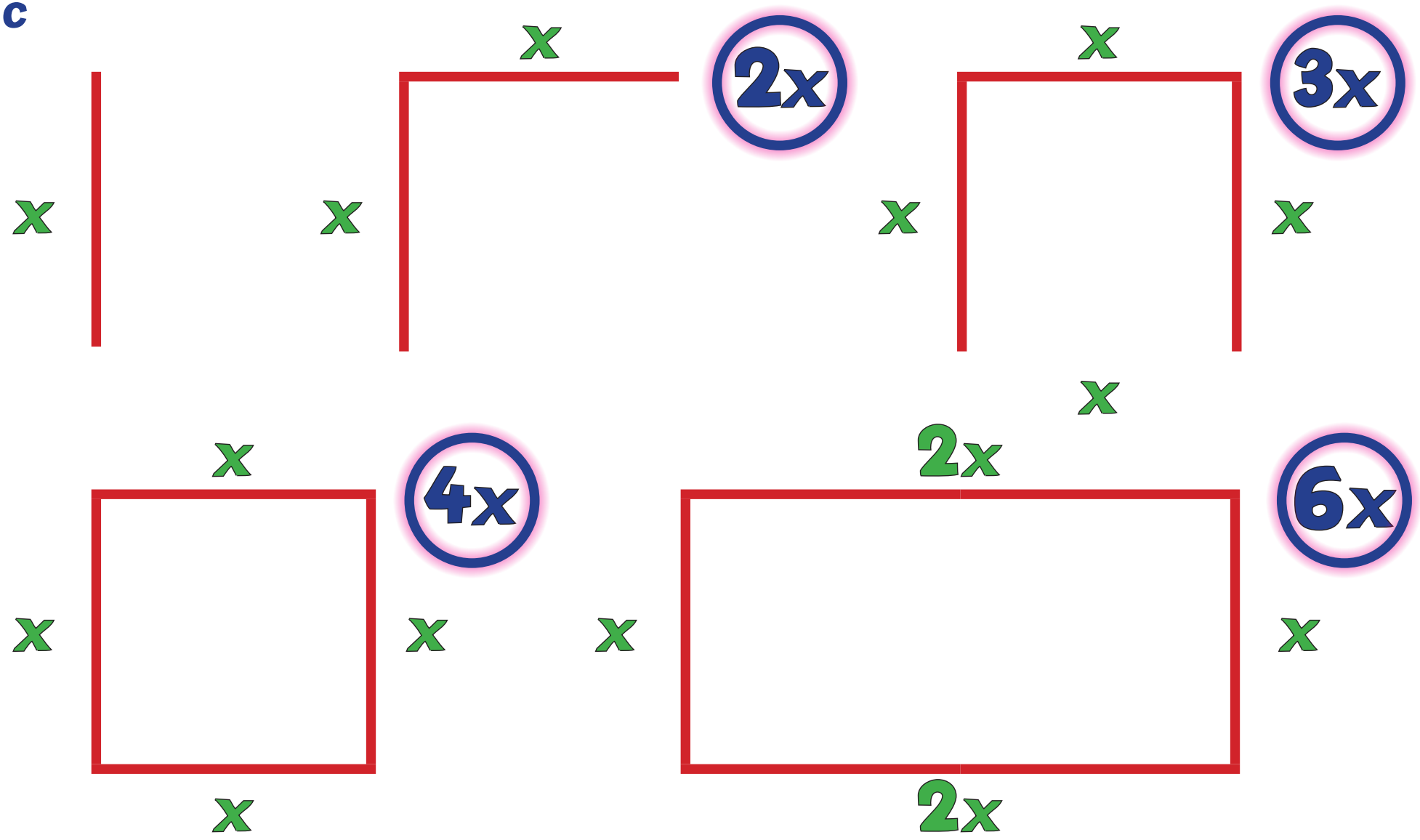



# A1: Formulae (Perimeter)

## 4c



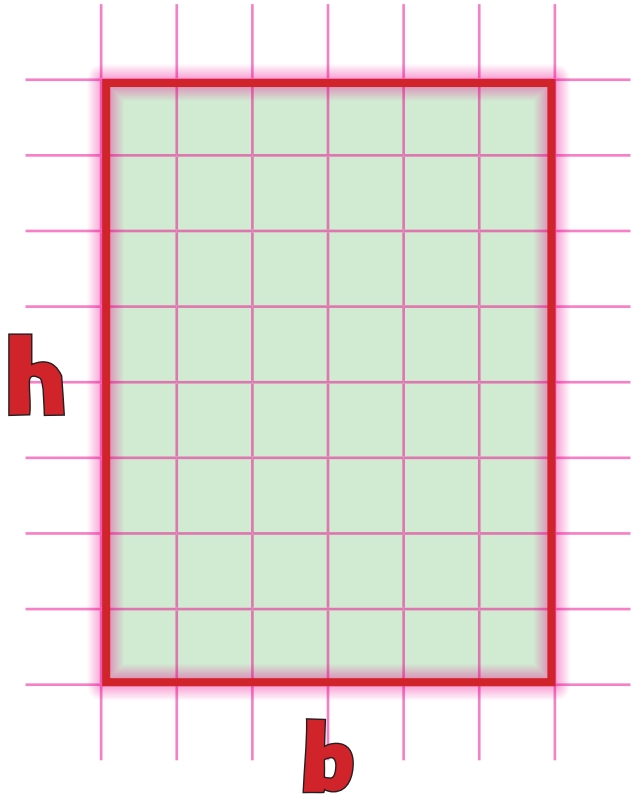
# A1: Formulae (Area)

b = base
h = height

5

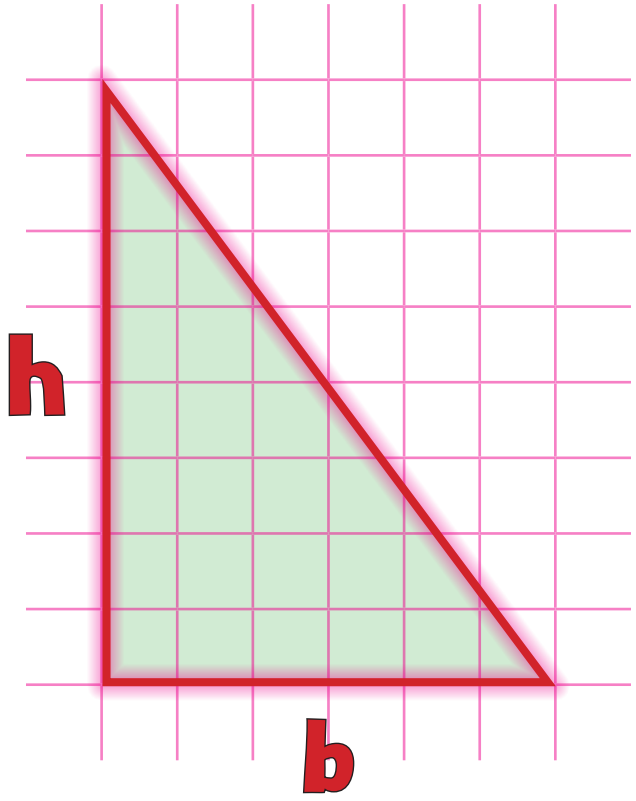
## Area of a Rectangle

$= b \times h$




## Area of a Triangle

$= \frac{1}{2} \times b \times h$



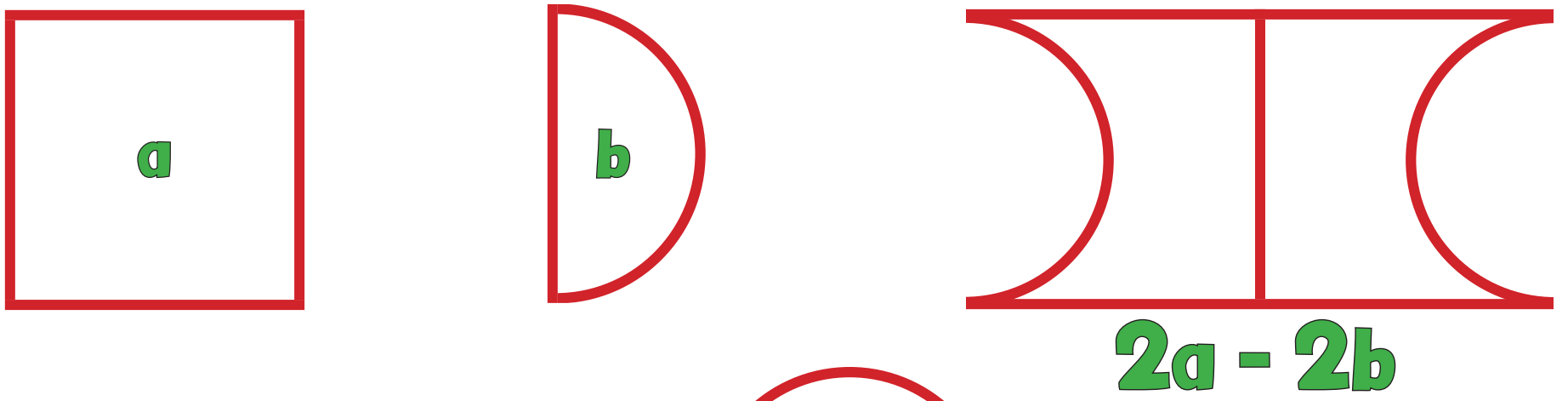

b = 6cm
h = 8cm

Area = 6cm x 8cm = 48cm²

Area = 0.5 x 6cm x 8cm = 24cm²

# A1: Formulae (General)

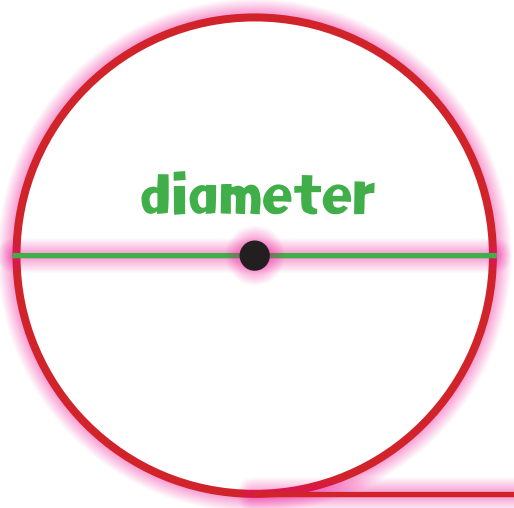
5/6



# AI: The Pi (π) you can't eat!

6

circumference

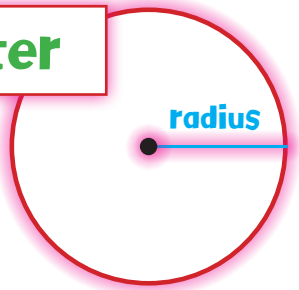



π (Pi) is the ratio of a circle's circumference to it's diameter!

$$\pi = \frac{\text{circumference}}{\text{diameter}}$$

Circumference = 3.141592653590 x Diameter


radius = $\frac{1}{2}$ x diameter




Area of a Circle = $\pi \times r \times r = \pi r^2$

Circumference of a Circle = $2\pi r = \pi d$

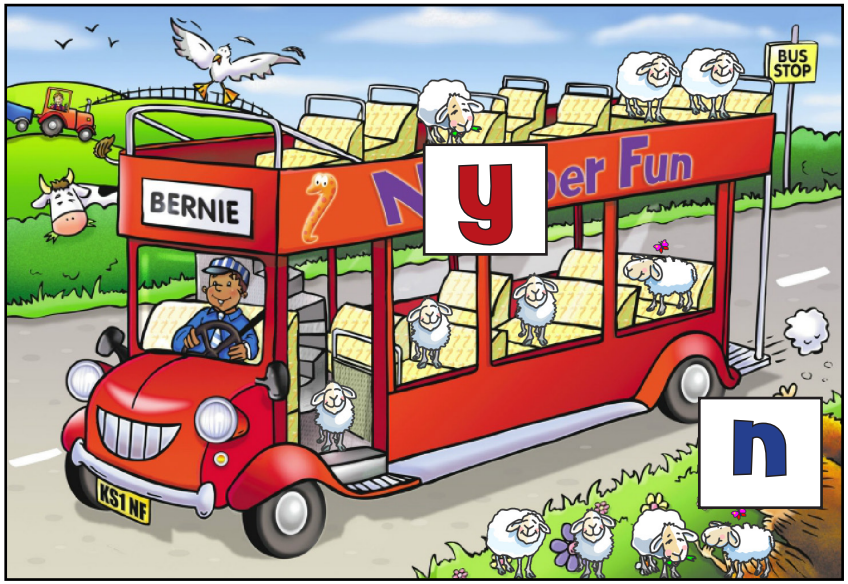
# AJ: Algebra Word Problems

5/6a

Suppose there are y sheep on a bus. At a bus stop n more sheep get on the bus.

How many sheep are now on the bus?

Answer: y + n



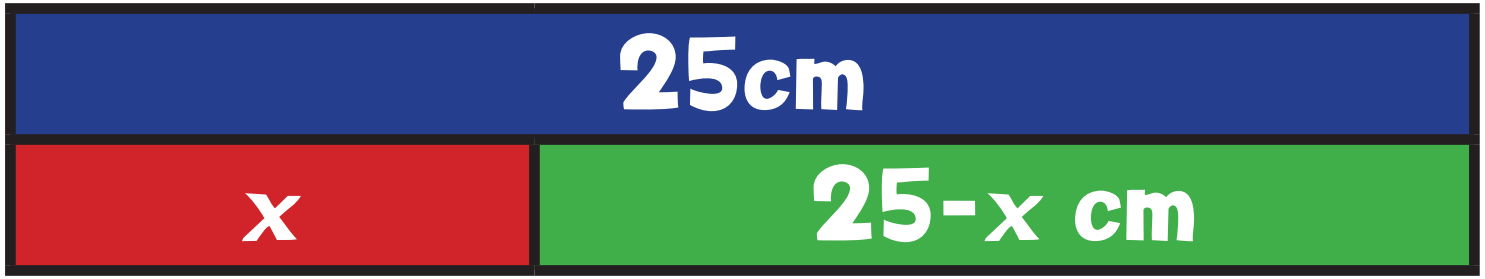
# AJ: Algebra Word Problems

5/6b

A piece of wood is 25 cm long.

How much remains after I cut off a piece with length $x$ cm?

Answer: $25 - x$ cm



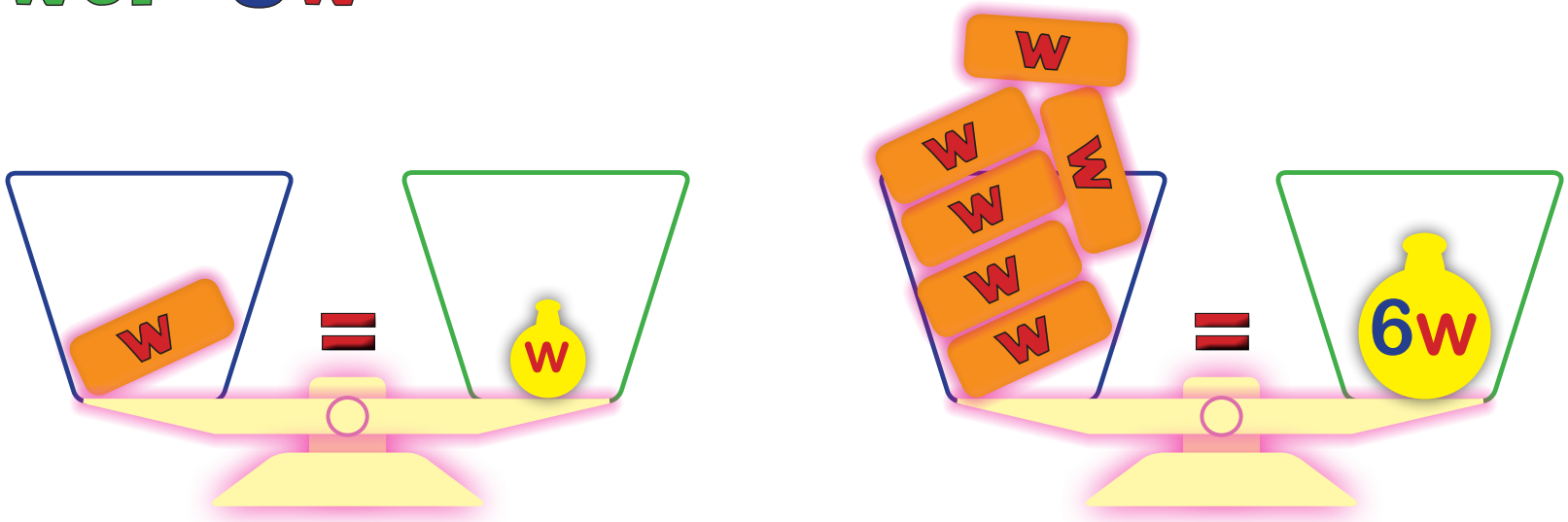
# AJ: Algebra Word Problems

5/6c

A brick weighs w kg.

How much do six bricks weigh?

Answer: 6w



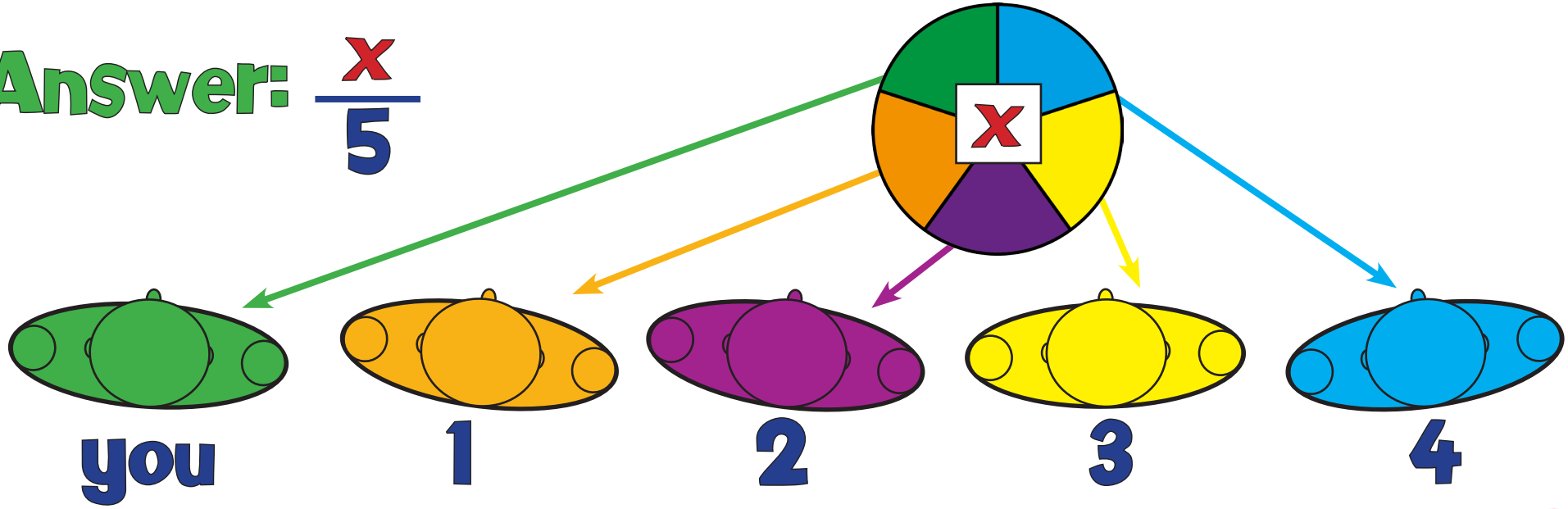
# AJ: Algebra Word Problems

5/6d

A prize of $x$ is shared equally between you and four others.

How much does each person recieve?

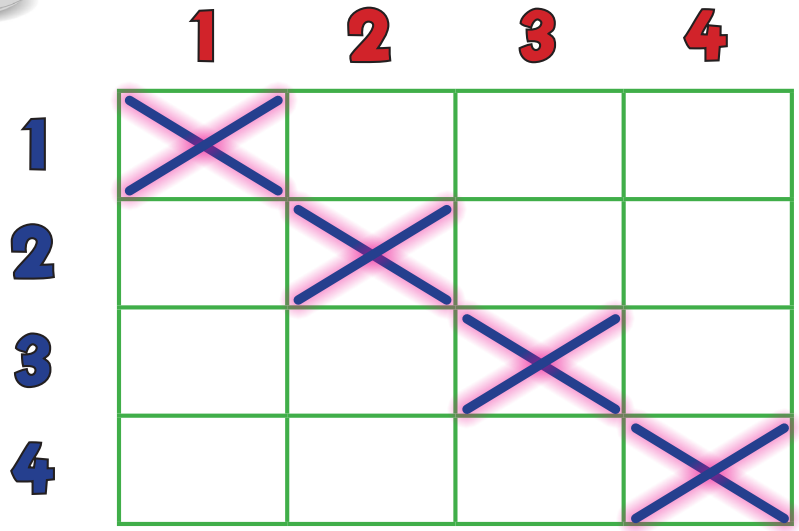
Answer: $\frac{x}{5}$



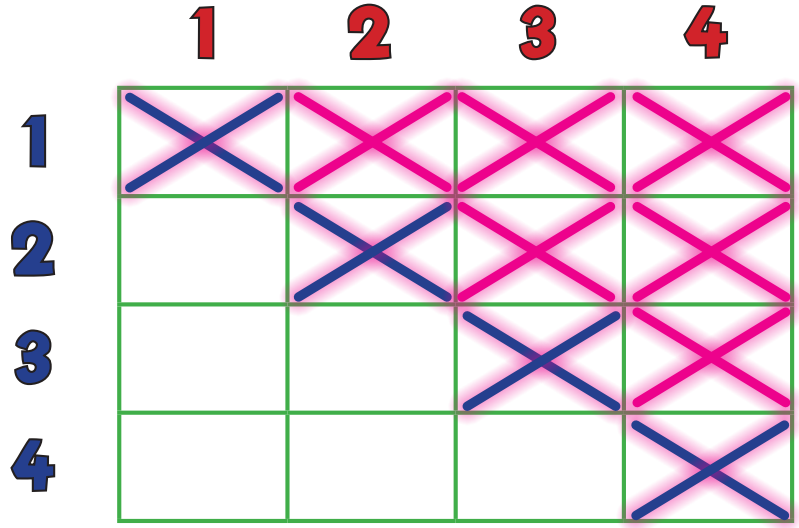
# AJ: Algebra Problem Solving

5/6e

**4 football teams were in a league together, and played each other once. How many fixtures were there?**




Each team can't play themselves. Home and Away fixtures for n teams: $n \times (n-1) = n(n-1)$




Each team plays each other once. Total fixtures for n teams:

$$\frac{n \times (n-1)}{2} = \frac{n(n-1)}{2}$$

# Pages in Bin!

# AA: Counting Sequences

2/3+

"Who is going to say 30?"

| 1 | 5 | 9 | 13 | 17 | 21 | ? | ? |
|---|---|---|---|---|---|---|---|

?

## Count in 4s!

| 4 | 8 | 12 | 16 | 20 | 24 | ? | ? |
|---|---|---|---|---|---|---|---|

Counting in 4s

| 2 | 6 | 10 | 14 | 18 | 22 | ? | ? |
|---|---|---|---|---|---|---|---|

2 less than counting in 4s

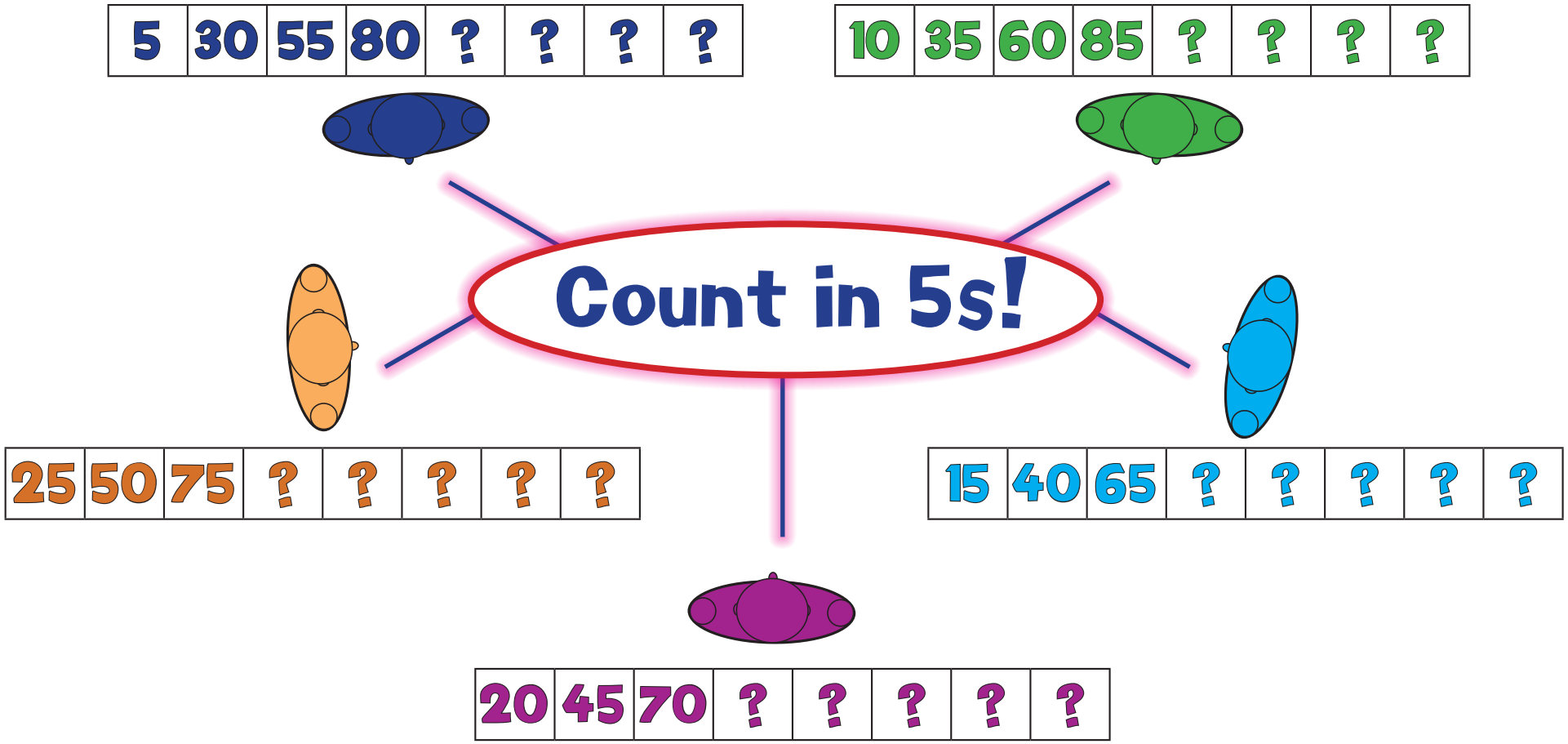
| 3 | 7 | 11 | 15 | 17 | 19 | ? | ? |
|---|---|---|---|---|---|---|---|

1 less than counting in 4s

# AB: Counting Sequences

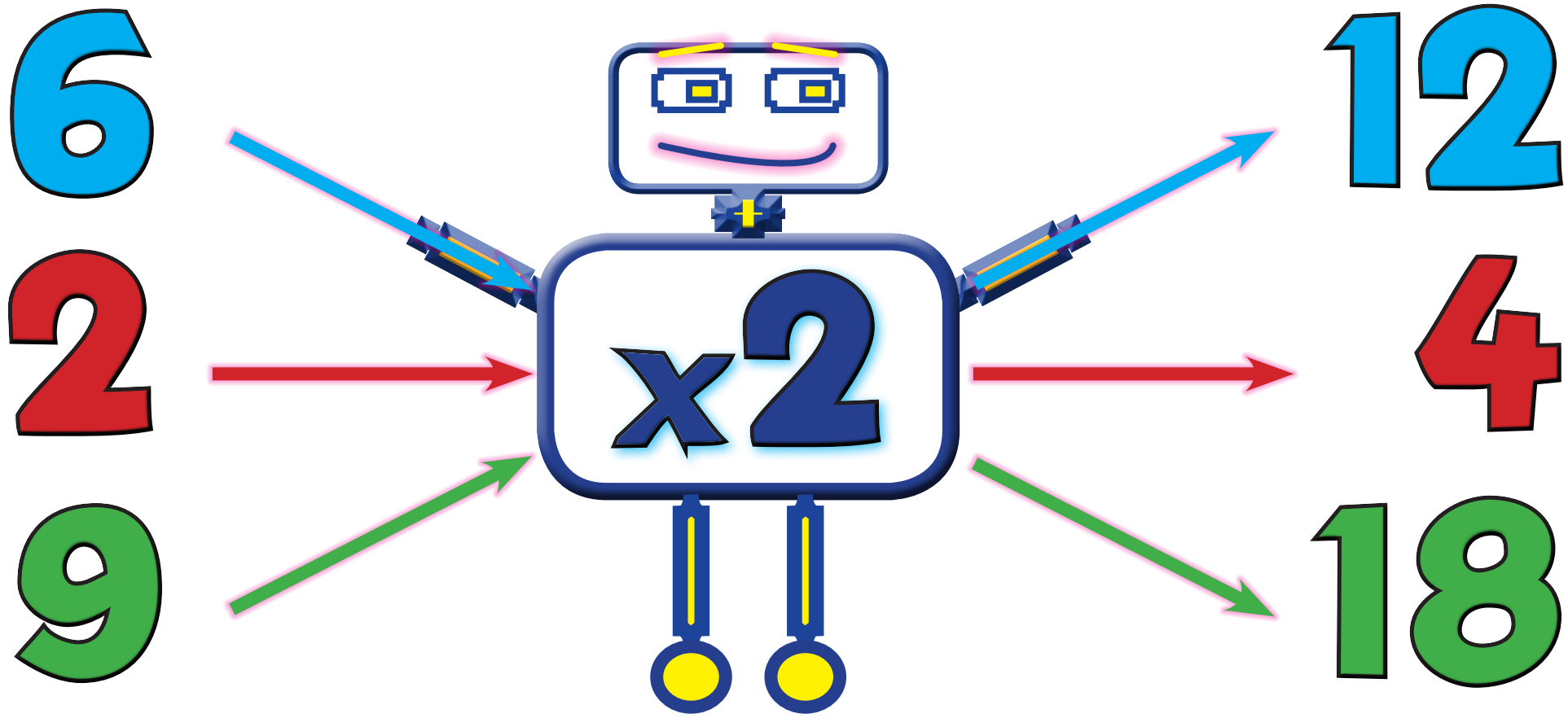
1/2

"Who is going to say 100?"



# AE: Function Machines

3b



# AE: Function Machines

## 6e

## Guardian of the Rule

2 Maps onto 6

3 Maps onto 10

5 Maps onto 18

8 Maps onto ?

N$^{th}$ term:

$4n - 2$

# AE: Function Machines

## 6b Guardian of the Rule

2 Maps onto ?

3 Maps onto ?

5 Maps onto ?

$n^{th}$ term?

Here's the Guardian's Rule!

x4 then -3

# AE: Function Machines

## 5b Guardian of the Rule

2 Maps onto 12

3 Maps onto 17

5 Maps onto 27

8 Maps onto ?

Here's the Guardian's Rule!

x5 then +2

# AG: Formulae (Area)

## 6a