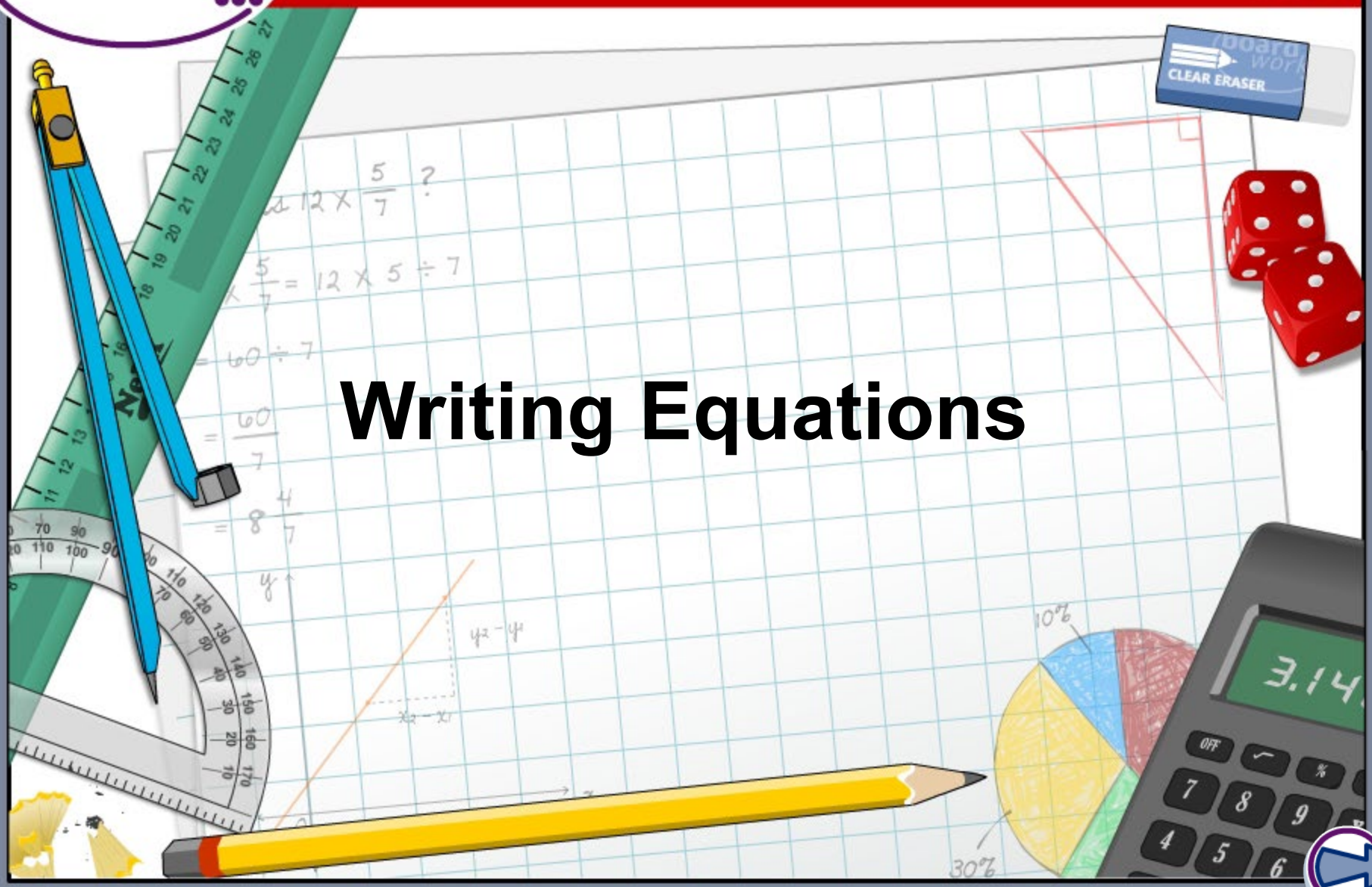

Writing Equations

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Information

Common core icons

This icon indicates a slide where the Standards for Mathematical Practice are being developed. Details of these are given in the Notes field.

Slides containing examples of mathematical modeling are marked with this stamp.

This icon indicates an opportunity for discussion or group work.

The **Standards for Mathematical Practice** outlined in the Common Core State Standards for Mathematics describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

They are:

1) Make sense of problems and persevere in solving them.

2) Reason abstractly and quantitatively.

3) Construct viable arguments and critique the reasoning of others.

4) Model with mathematics.

5) Use appropriate tools strategically.

6) Attend to precision.

7) Look for and make use of structure.

8) Look for and express regularity in repeated reasoning.

This icon indicates that the slide contains activities created in Flash. These activities are not editable.

This icon indicates teacher's notes in the Notes field.

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How to write an equation

A pound of oranges costs $2.89. Write an equation relating the cost of oranges to the number of pounds purchased.

Press the buttons for help:

- Identify
- Describe
- Substitute
- Calculate

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Graphing equations

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Constant speed

A car is traveling at a constant speed of 45 mph. Write an equation to show the relationship between the distance traveled in miles (d) and the time taken in hours (t).

$$d = 45t$$

How can we test this equation?

We can test the equation by substituting 1 for t.

$45 \times 1 = 45$

We know the car is traveling 45 mph, so the equation works.

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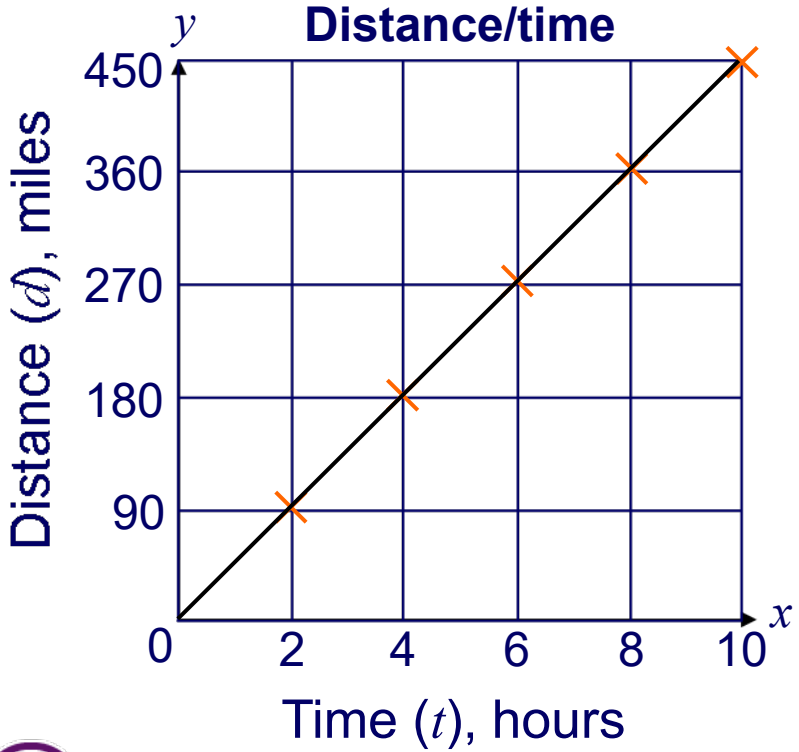
Distance/time graph

We can substitute more values for t to create a table.

Time (t)	2	4	6	8	10
Distance (d)	90	180	270	360	450



We can graph these pairs of values on a coordinate plane.

We can use our equation ($d = 45t$) or the graph to find other values on the line.

For example:

a) Find d if $t = 3$. $d = 135$ miles

b) Find d if $t = 21$. $d = 945$ miles

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Calculating cost

Maria is ordering books online. Each book costs $8. There is an additional $3 charge for shipping and handling. Write an equation showing the relationship between the number of books Maria orders (b) and the total cost (c).

The total cost will be $8 per book, plus $3 for shipping.

How can we represent this mathematically?

$$c = 8b + 3$$

How can we graph this equation?

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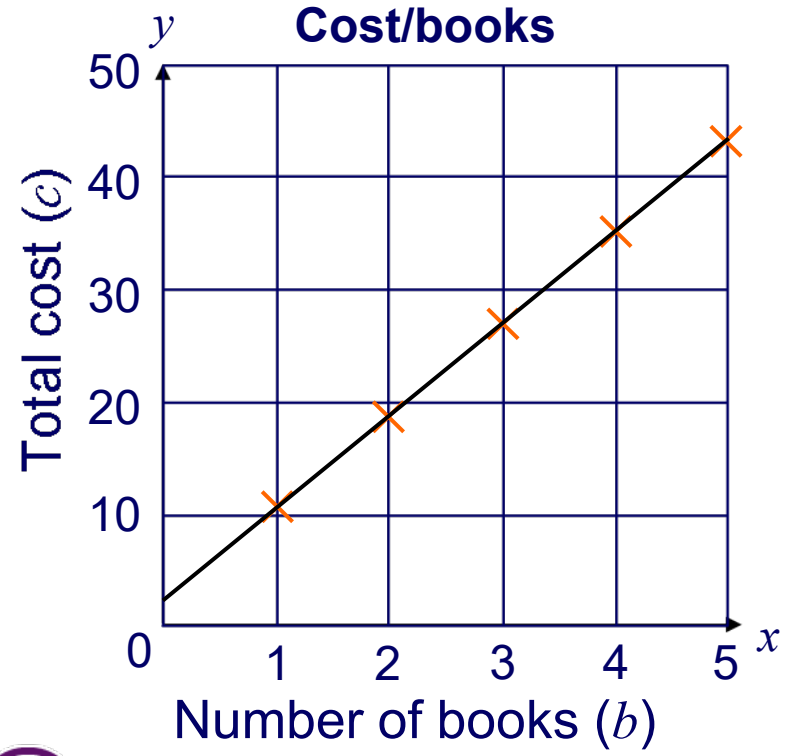
Graphing cost

Once again, we can use substitution to find value pairs.

No. of books (b)	1	2	3	4	5
Total cost (c)	11	19	27	35	43



Why doesn't the line pass through the origin?

Try substituting 0 for b.
What value do you get for c?

$c = 8(0) + 3 = 3$

What does this mean in the context of the problem?

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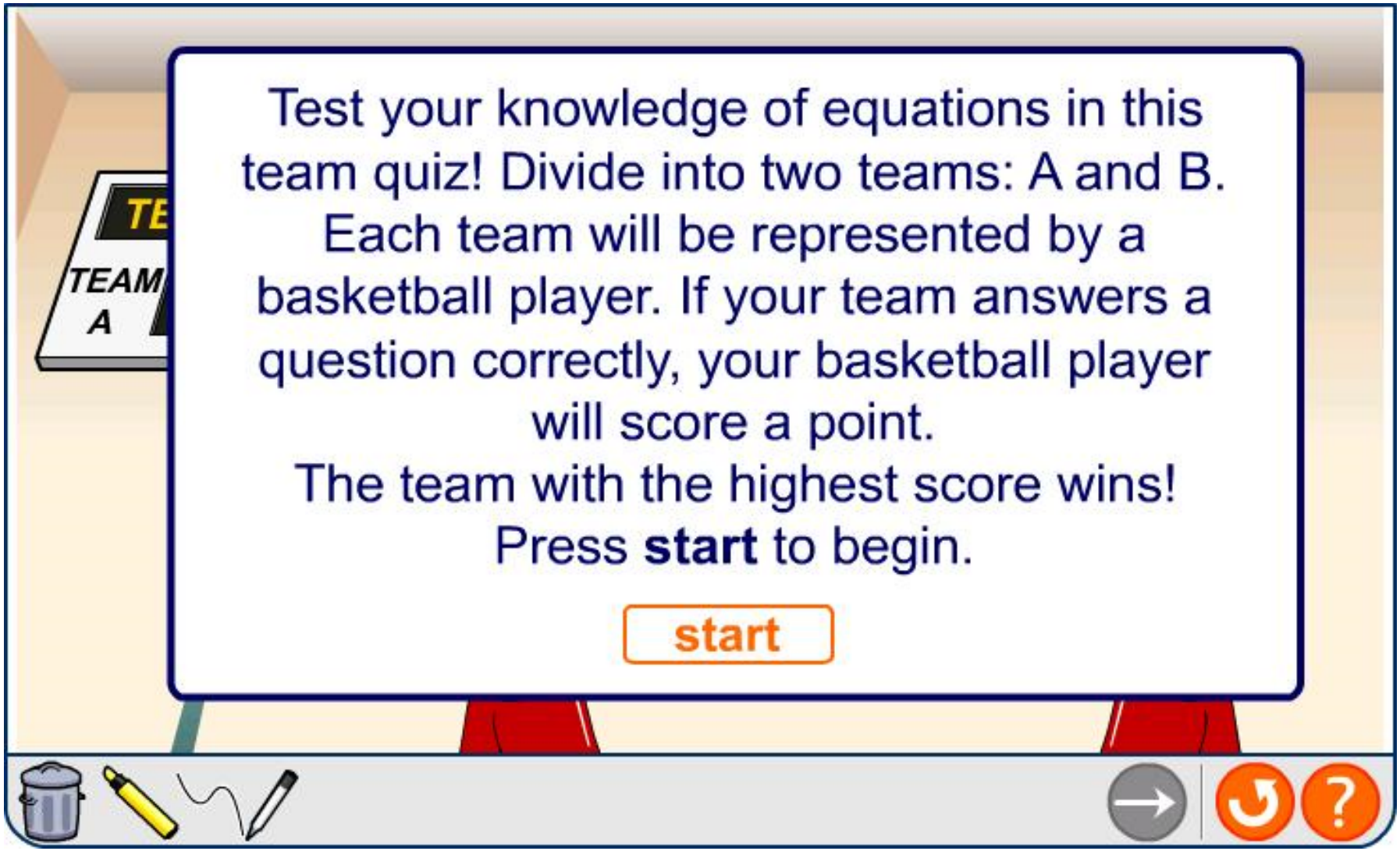
Test your knowledge!



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