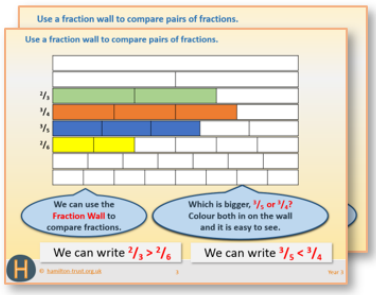
# Week 9, Day 4

## Describe co-ordinates after a translation

**Each day covers one maths topic. It should take you about 1 hour or just a little more.**

1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.

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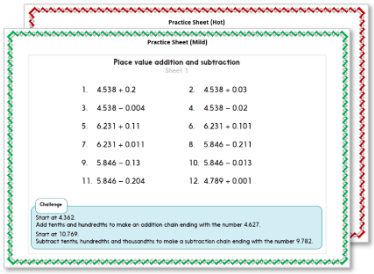
2. Tackle the questions on the **Practice Sheet**.
   There might be a choice of either Mild (easier) or Hot (harder)!
   Check the answers.

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3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**


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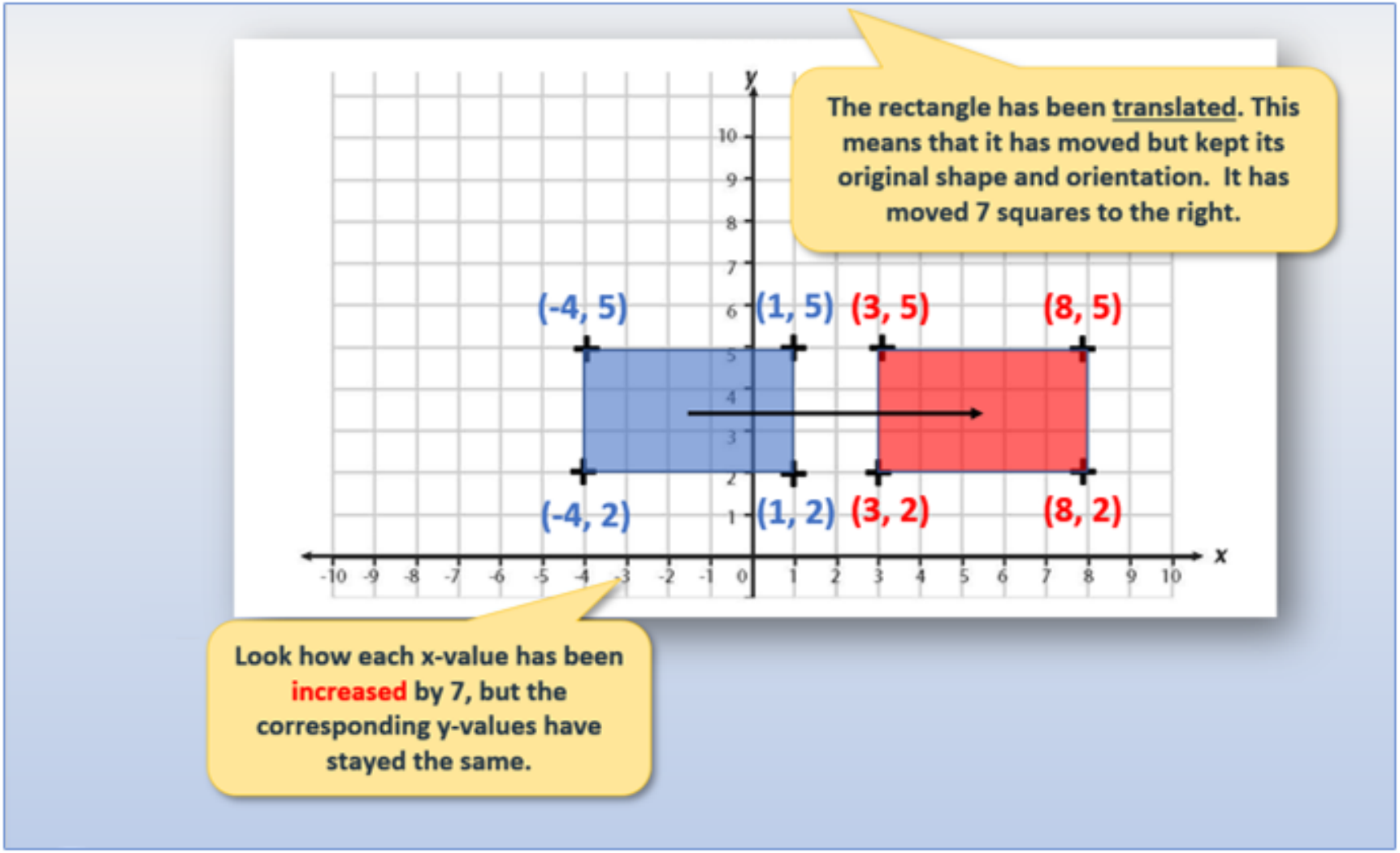
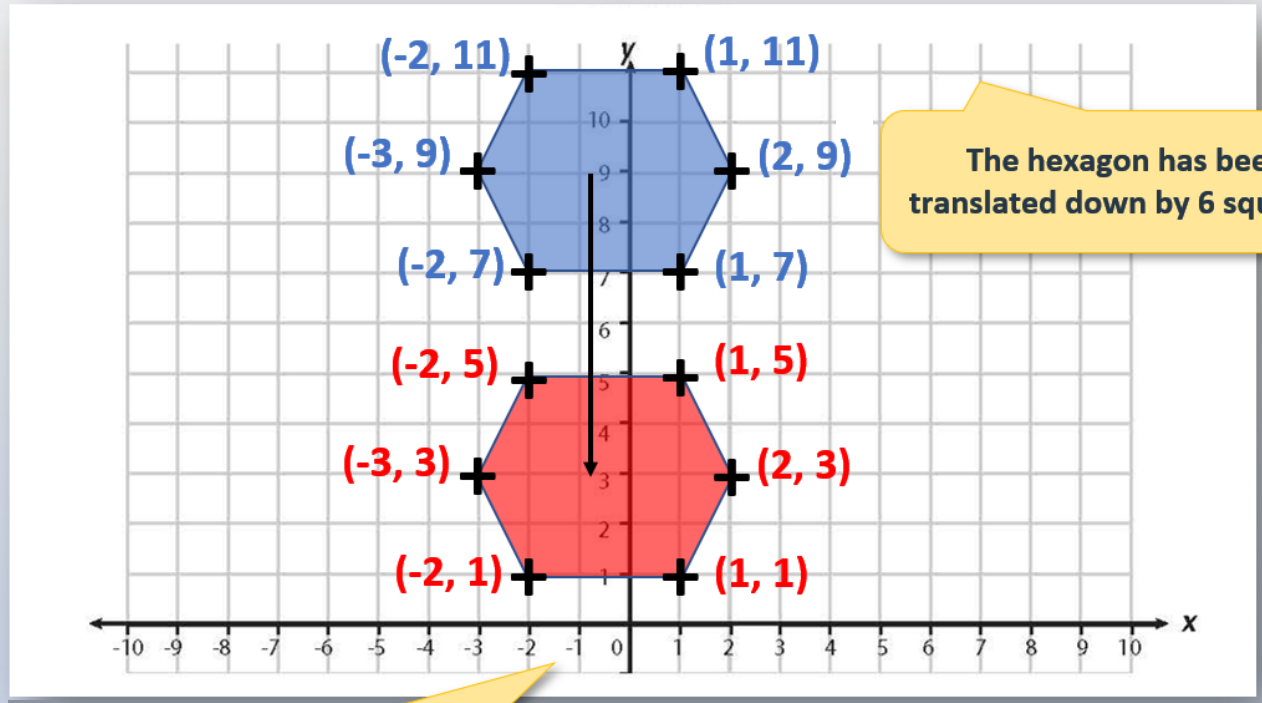
4. Think you've cracked it? Whizzed through the Practice Sheets?
   Have a go at the **Investigation**…

# Learning Reminders



# Learning Reminders



## Practice Sheet Mild

# Translations

Choose five different coloured pencils.
Join the first set of points using one colour, then translate the shape, marking its new position in the same colour.
Write the new co-ordinates at each vertex.

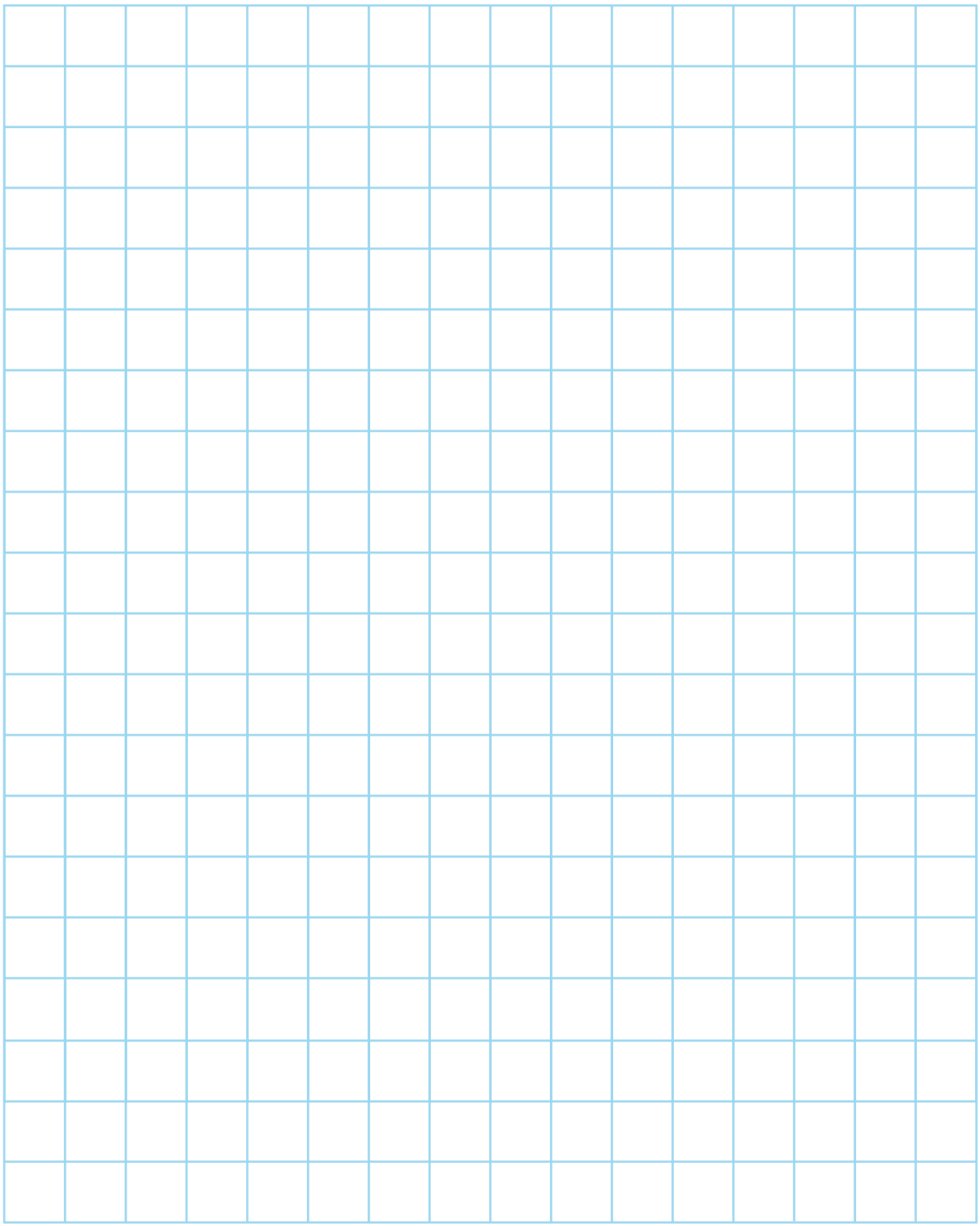
Repeat for each set of points in a different colour.

1. (1, 1), (1, 4), (5, 4), (5, 1). Translate the shape 2 squares to the left.
2. (1, 9), (2, 8), (4, 8), (5, 9), (4, 10), (2, 10). Translate the shape 3 squares down.
3. (-5, 5), (-5, 6), (-2, 5). Translate the shape 4 squares to the right.
4. (-8, 1), (-6, 3), (-2, 3), (-4, 1). Translate the shape 5 squares to the right.
5. (6, 6), (7, 7), (9, 7), (10, 6). Translate the shape 5 squares to the left.

What happens to the co-ordinates when you move a shape up? And down?

What happens when you move a shape to the left? And right?

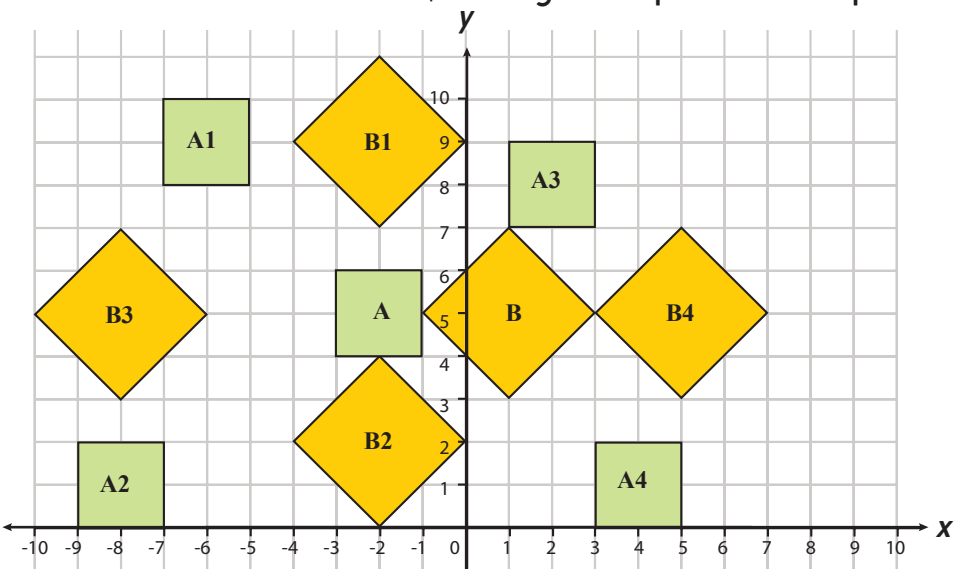
# Practice Sheet Mild
## Translations



# Practice Sheet Hot

## Pattern of translations

Here is a pattern made with translations, starting with square A and square B.




1. Work out how each shape has been translated.
   Fill in the table to show the moves.
   How many squares in the *x*-direction? Is it to the left or right?
   How many squares in the *y*-direction? Is it up or down?

| Original shape | Translated shape | Squares in x direction | Squares in y direction |
|---|---|---|---|
| Square A | Square A1 | *4 to the left* | *4 up* |
| Square A | Square A2 | | |
| Square A | Square A3 | | |
| Square A | Square A4 | | |
| Square B | Square B1 | | |
| Square B | Square B2 | | |
| Square B | Square B3 | | |
| Square B | Square B4 | | |

**Challenge**

Here are the descriptions of two more translations.
What are the co-ordinates of the translated shapes?

a. Square A ⟶ Square A5 3 squares to the left, 5 squares up

b. Square B ⟶ Square B5 6 squares to the right, 2 squares down