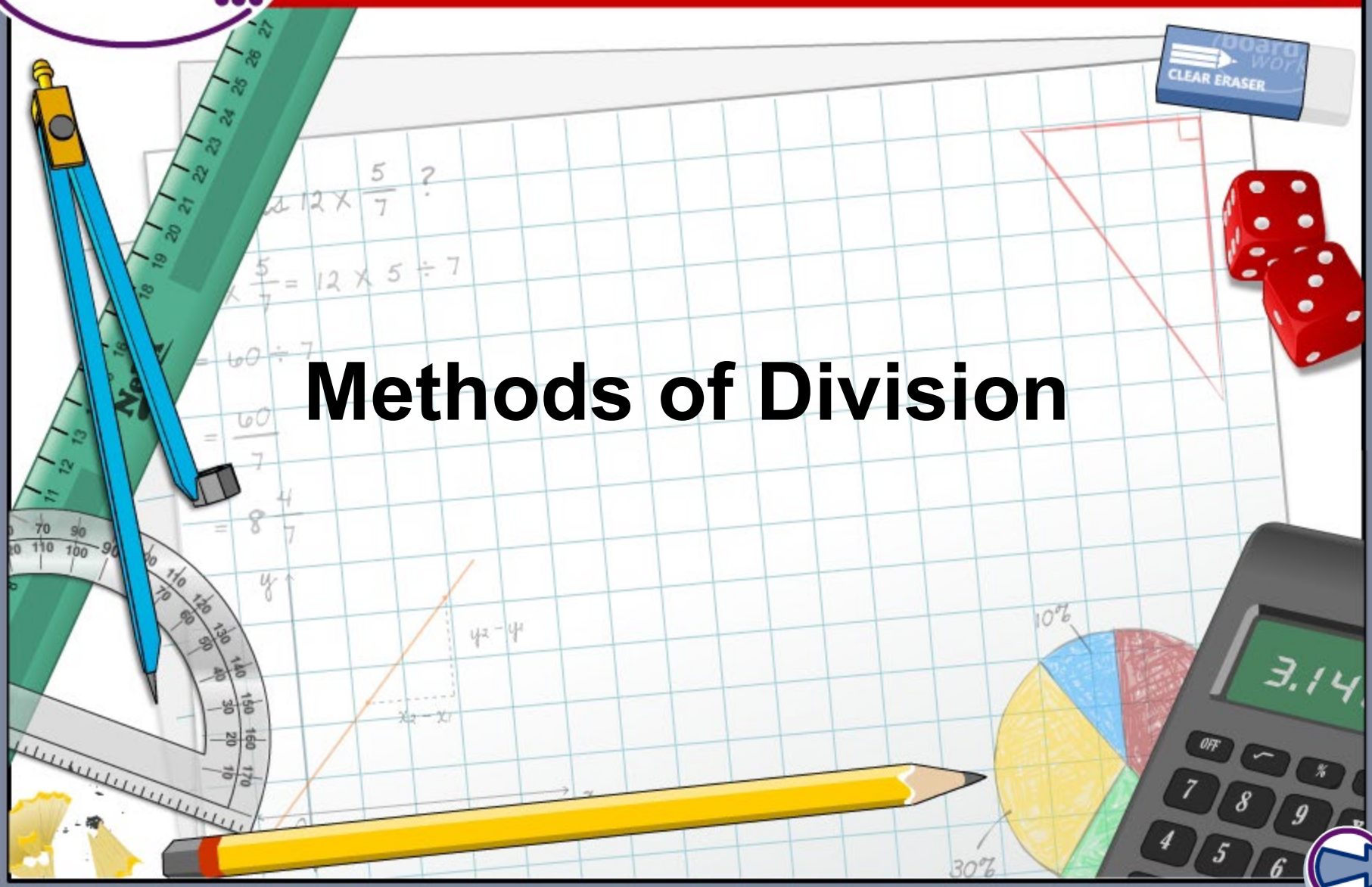



# Methods of Division

# 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.

These 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.

# Reviewing division

**A class of 25 students walked a combined distance of 214 miles in a charity walk-a-thon. What is the average distance each student walked?**

$$214 \div 25 = 8.56$$

Dividend

Divisor

Quotient

This may seem like a tough problem, but there are lots of different methods we can use to divide big numbers.

# Mental division

As a class, try to list as many mental division methods as you can.

You might have mentioned:

- repeated subtraction
- the distributive property
- short division
- fractions
- factors.

# Using factors

**What is 68 ÷ 20?**

We can find 68 ÷ 20 by dividing 20 into **factors**.

$$20 = 2 \times 10$$

So we can divide 68 by 2 and then by 10:

$$68 \div 20 = 68 \div 2 \div 10$$

$$= 34 \div 10$$

$$= 3.4$$

# Using the distributive property


**What is 486 ÷ 6?**

We can find 486 ÷ 6 by using the **distributive property**.

$$486 = 480 + 6$$

So:

$$486 \div 6 = (480 \div 6) + (6 \div 6)$$

$$= 80 + 1$$

$$= 81$$

# Using fractions

**What is 420 ÷ 40?**

We can simplify 420 ÷ 40 by writing the division as a fraction and then canceling.

$$420 \div 40 = \frac{420}{40}$$

$$\frac{\cancel{420}^{21}}{\cancel{40}_{2}} = \frac{21}{2}$$

$$= 10\,{}^{1}\!/_{2}$$

$$= 10.5$$

# Using short division

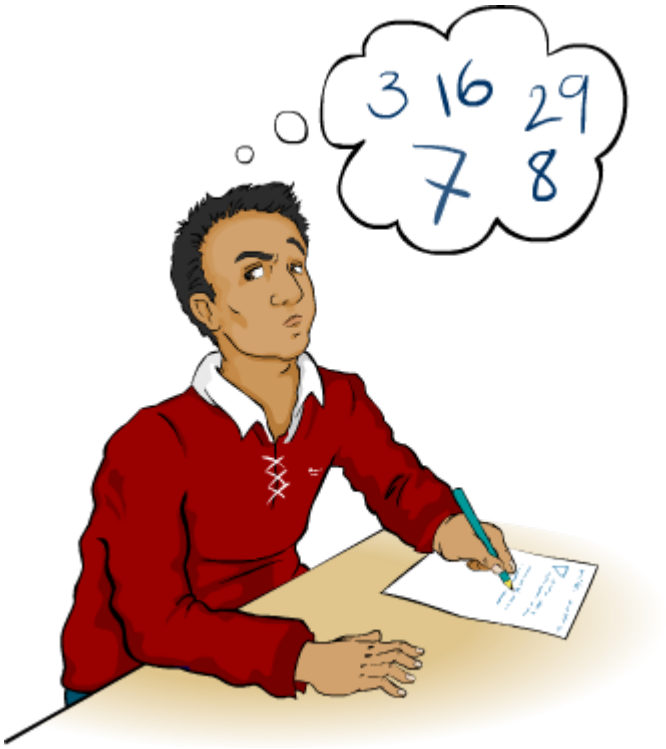
## What is 387 ÷ 6?

Start by finding an approximate answer:

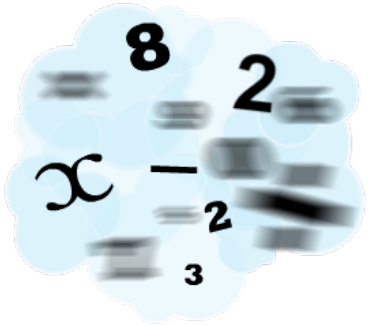
387 ÷ 6 ≈ 390 ÷ 6 = 65

$$\begin{array}{r} 0\,6\,4\,.\,5 \\ \hline 6\,\overline{)\,3^{3}8^{2}7\,.^{3}0} \end{array}$$

387 ÷ 6 = **64.5**



# Using repeated subtraction



**What is 259 ÷ 5?**

Start by finding an approximate answer:

$259 \div 5 \approx 260 \div 5 = 52$

$$
\begin{array}{r|l}
5 \;)\; 259 & \\
-\;255 & 5 \times \mathbf{51} \\
\hline
\quad 4 & \\
-\;\;4 & 5 \times \mathbf{0.8} \\
\hline
\quad 0 &
\end{array}
$$

Answer: **51.8**

# Which method?

Some division methods are best suited to certain kinds of problems. For example, it would be difficult to use fractions to divide 214 by 25, because these numbers do not have any common factors we could use to cancel them.

Look at each question and decide which method would be best suited to the problem.

Press **start** to begin.

start

# Try it out!

**Ashleigh's band won $854.00 in a talent contest. The band has five members. How much money will each member get if they split the winnings equally?**

Try using one of the methods you have learned about in this presentation to find the solution. You could use:

- repeated subtraction
- the distributive property
- short division
- fractions
- factors.

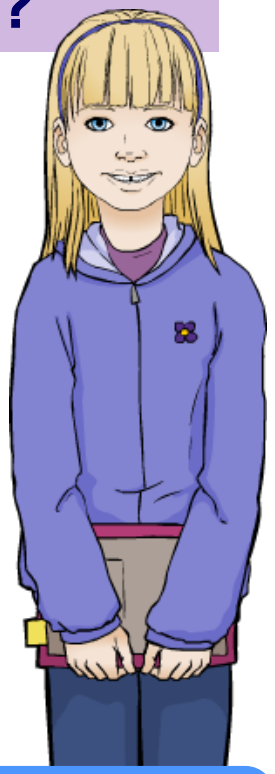
# Brianna's answer

**Brianna worked on this problem and thinks that each band member would get $170.80. Is she correct?**

Start by finding an approximate answer:

$854 \div 5 \approx 850 \div 5 = 170$

$$
\begin{array}{r|l}
5 & 854 \\
 & -\ 750 \quad 5 \times 150 \\
\hline
 & 104 \\
 & -\ 100 \quad 5 \times 20 \\
\hline
 & 4 \\
 & -\ 4 \quad 5 \times 0.8 \\
\hline
 & 0
\end{array}
$$



Answer: 170.8

**Brianna is correct!**

# Fill in the numbers

Drag the digit cards to complete the problem below.

0 1 2 3 4 5 6 7 8 9