Name:

Exam Style Questions

Trial and Improvement

Corbettmaths

Equipment needed: Calculator, pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 116

Answers and Video Solutions

1. The equation $x^2 + x = 62$

has a solution between 7 and 8.

Use trial and improvement to find this solution.
Give your answer to one decimal place.

x	$x^2 + x$	Comment

x = ...

(4)

2. The equation $x^2 - 2x = 12$

has a solution between 4 and 5.

Use trial and improvement to find this solution.
Give your answer to one decimal place.

x	$x^2 - 2x$	Comment

x = ...

(4)

3. The equation $x^3 + 3x = 32$

has a solution between 2 and 3.

Use trial and improvement to find this solution.
Give your answer to one decimal place.

x	$x^3 + 3x$	Comment

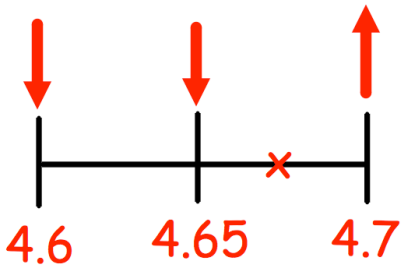
x = ...

(4)

4. Ciara is solving the equation $x^2 - 5x = 80$ to one decimal place, using trial and improvement.

Below is her method.

x	$x^2 - 5x$	Comment
5	$5^3 - 5 \times 5 = 100$	Too big
4	$4^3 - 5 \times 4 = 44$	Too small
4.5	$4.5^3 - 5 \times 4.5 = 68.625$	Too small
4.6	$4.6^3 - 5 \times 4.6 = 74.336$	Too small
4.7	$4.7^3 - 5 \times 4.7 = 80.323$	Too big
4.65	$4.65^3 - 5 \times 4.65 = 77.294...$	Too small



Answer: 4.7

Explain her mistake.

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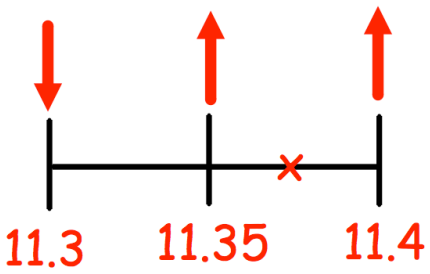
(2)

5. William is solving the equation $x^3 - 9x^2 = 300$ using trial and improvement.

Below is his method.

x	$x^3 - 9x^2$	Comment
11	242	Too low
12	432	Too high
11.4	311.904	Too high
11.3	293.687	Too low
11.35	302.732875	Too high



Answer: 11.4

Explain his mistake.

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.....

.....

(2)

6. The equation

$$x^3 + 2x = 50$$

has a solution between 3 and 4.

Use trial and improvement to find this solution.
Give your answer correct to 1 decimal place.
You must show all your working.

x = ...

(4)

7. The equation

$$x^3 + 4x = 168$$

has a solution between 5 and 6.

Use trial and improvement to find this solution.
Give your answer correct to 2 decimal places.
You must show all your working.

x = ...

(5)

8. The equation

$$(x + 1)(x + 3) = 84$$

has a solution between 7 and 8.

Use trial and improvement to find this solution.
Give your answer correct to 1 decimal place.
You must show all your working.

x = ...

(4)

9. The equation

$$2x^2 + 3x = 50$$

has a solution between 4 and 5.

Use trial and improvement to find this solution.
Give your answer correct to 1 decimal place.
You must show all your working.

x = ...

(4)

10. The equation

$$x^3 + 2x^2 = 40$$

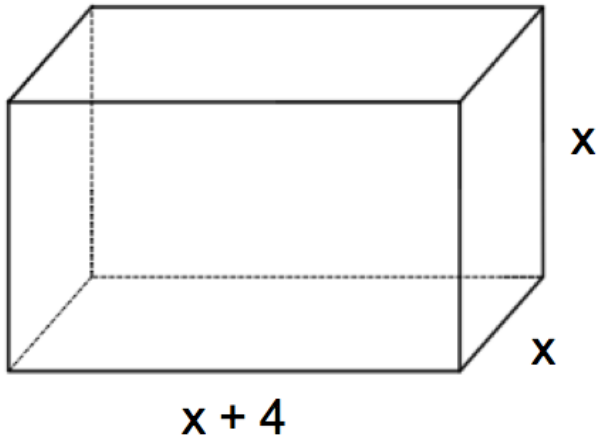
has a solution between 2 and 3.

Use trial and improvement to find this solution.
Give your answer correct to 1 decimal place.
You must show all your working.

x = ...

(4)

11. Shown below is a cuboid.



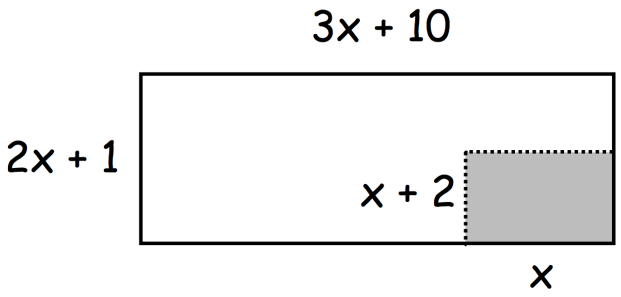
The volume of the cuboid is 500cm³.
An expression for the volume of the cuboid is $x^3 + 4x^2$

Use trial and improvement to find the value of x to 1 decimal place.

x = ...

(4)

12. Nina had a rectangular piece of white card measuring (3x + 10)cm by (2x + 1)cm
She remove a smaller rectangle from the corner, measuring (x + 2)cm by x cm.



The area of card remaining is 130cm²

(a) Show that $5x^2 + 21x = 120$

(2)

(b) $5x^2 + 21x = 120$ has a solution between x = 3 and x = 4.

Use trial and improvement to find this solution to 1 decimal place.

x = ...

(4)