New Maths GCSE: A20 - Trial and Improvement

Name:... Date:......................................

Which of these is a good idea for the next step to solve this equation by trial and improvement?

Solve $x^2 - x = 27$ (to 1 d.p)

A) Try x = 5.5

B) Try x = 5.786

x	$x^2 - x$	27
5	$5^2 - 5 = 20$	too small
6	$6^2 - 6 = 30$	too big

C) Try x = 4

D) Try x = 7

Correct Answer: A B C D

Explanation:

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Which of these is a good idea for the next step to solve this equation by trial and improvement?

Solve $x^2 - x = 27$ (to 1 d.p)

A) Try x = 5.4

B) Try x = 5.501

x	$x^2 - x$	27
5	$5^2 - 5 = 20$	too small
6	$6^2 - 6 = 30$	too big
5.5	$5.5^2 - 5.5 = 24.75$	too small

C) Try x = 5.6

D) Try x = 7

Correct Answer: A B C D

Explanation:

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What is the best next step to solve this equation by trial and improvement?

A) Try x = 5.71

B) No more to do as you know the answer is x = 5.7

Solve $x^2 - x = 27$ (to 1 d.p)

x	$x^2 - x$	27
5	$5^2 - 5 = 20$	too small
6	$6^2 - 6 = 30$	too big
5.5	$5.5^2 - 5.5 = 24.75$	too small
5.6	$5.6^2 - 5.6 = 25.76$	too small
5.7	$5.7^2 - 5.7 = 26.79$	too small
5.8	$5.8^2 - 5.8 = 27.84$	too big

C) Try x = 5.75

D) Keep trying x values until you get as close to 27 as possible

Correct Answer: A B C D

Explanation:

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Question 1

What is the answer to this trial and improvement question?

A) You don't know as you have not got an answer of 27 yet

B) x = 5.7

C) x = 5.75

D) x = 5.8

Solve $x^2 - x = 27$ (to 1 d.p)

x	$x^2 - x$	27
5	$5^2 - 5 = 20$	too small
6	$6^2 - 6 = 30$	too big
5.5	$5.5^2 - 5.5 = 24.75$	too small
5.6	$5.6^2 - 5.6 = 25.76$	too small
5.7	$5.7^2 - 5.7 = 26.79$	too small
5.8	$5.8^2 - 5.8 = 27.84$	too big
5.75	$5.75^2 - 5.75 = 27.3125$	too big

Correct Answer: A B C D

Explanation:

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Question 2

Which of these is a good idea for the next step to solve this equation by trial and improvement?

A) Try x = 1.01

B) Try x = 3

C) Try x = 1.3

D) Try x = 1.9

Solve $x^3 + 2x = 6$ (to 1 d.p)

x	$x^3 + 2x$	6
1	$1^3 + 2 \times 1 = 3$	too small
2	$2^3 + 2 \times 2 = 12$	too big

Correct Answer: A B C D

Explanation:

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Question 3

Which of these is a good idea for the next step to solve this equation by trial and improvement?

A) Try x = 1.4

B) Try x = 1.31

C) Try x = 3

D) Try x = 1.2

Solve $x^3 + 2x = 6$ (to 1 d.p)

x	$x^3 + 2x$	6
1	$1^3 + 2 \times 1 = 3$	too small
2	$2^3 + 2 \times 2 = 12$	too big
1.3	$1.3^3 + 2 \times 1.3 = 4.797$	too small

Correct Answer: A B C D

Explanation:

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Question 4

What is the best next step to solve this equation by trial and improvement?

A) Keep trying x values until you get as close to 6 as possible

B) Try x = 1.45

C) x = 1.6

D) No more to do as you know the answer is x = 1.5

Solve $x^3 + 2x = 6$ (to 1 d.p)

x	$x^3 + 2x$	6
1	$1^3 + 2 \times 1 = 3$	too small
2	$2^3 + 2 \times 2 = 12$	too big
1.3	$1.3^3 + 2 \times 1.3 = 4.797$	too small
1.4	$1.4^3 + 2 \times 1.4 = 5.544$	too small
1.5	$1.5^3 + 2 \times 1.5 = 6.375$	too big

Correct Answer: A B C D

Explanation:

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What is the answer to this trial and improvement question?

A) x = 1.45

B) x = 1.4

C) x = 1.5

D) You don't know as you have not got an answer of 6 yet

Solve $x^3 + 2x = 6$ (to 1 d.p)

x	$x^3 + 2x$	6
1	$1^3 + 2 \times 1 = 3$	too small
2	$2^3 + 2 \times 2 = 12$	too big
1.3	$1.3^3 + 2 \times 1.3 = 4.797$	too small
1.4	$1.4^3 + 2 \times 1.4 = 5.544$	too small
1.5	$1.5^3 + 2 \times 1.5 = 6.375$	too big
1.45	$1.45^3 + 2 \times 1.45 = 5.948...$	too small

Correct Answer: A B C D

Explanation:

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