

TRIAL AND IMPROVEMENT – PRACTICE QUESTIONS



metatutor

1.

A solution to the equation $2x^2 + 7x - 3 = 0$ lies between 0 and 1.

Use trial and improvement to find this solution to 1 decimal place.
The table has been started for you.

0.4

x	Value	Too big or too small?
0	-3	Too small
1	6	Too big
0.5	1	too big
0.4	0.12	too big
0.3	-0.72	too small
0.35	-0.305	too small

2.

A solution to the equation $3x^2 - 5x + 1 = 0$ lies between 1 and 2.

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

1.4

x	Value	Too big or too small?
1.5	0.25	too big
1.4	-0.12	too small
1.45	0.0575	too big

3.

A solution to the equation $3x^3 - 5x^2 = 23$ lies between 2 and 3.

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

2.7

x	Value	Too big or too small?
2.5	15.625	too small
2.6	18.928	too small
2.7	22.599	too small
2.8	26.656	too big
2.75	24.578125	too big

4.

A solution to the equation $6x^3 + 5x = 50$ lies between 1 and 2.

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

1.5	27.75	too small
1.6	32.576	too small
1.7	37.978	too small
1.8	43.992	too small
1.9	50.654	too big
1.85	47.23975	too small

1.9

5.

A solution to the equation $x^3 + 6x^2 - 5x = 75$ lies between 3 and 4.

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

3.5	98.875	too big
3.4	91.664	too big
3.3	84.777	too big
3.2	78.208	too big
3.1	71.951	too small
3.15	75.040...	too big

3.1

6.

A solution to the equation $x^3 - 4x^2 + 11x = 90$ lies between 5 and 6.

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

5.5	105.875	too big
5.4	100.224	too big
5.3	94.817	too big
5.2	89.648	too small
5.25	92.203125	too big

5.2

7.

A solution to the equation $3x^3 + 10x^2 - 12x = 50$ lies between 2 and 3.

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

2.5	79.375	too big
2.4	70.272	too big
2.3	61.801	too big
2.2	53.944	too big
2.1	46.683	too small
2.15	50.240125	too big

2.1

8.

A solution to the equation $5x^2 - 11x = 15$ lies between 3.1 and 3.2.

Use trial and improvement to find this solution to 2 decimal places.

3.15	14.9625	too small
3.16	15.168	too big
3.155	15.065125	too big

3.15

9.

A solution to the equation $3x^3 + 4x^2 + 5x = 100$ lies between 2.6 and 2.7.

Use trial and improvement to find this solution to 2 decimal places.

2.65	97.168875	too small
2.66	98.065688	too small
2.67	98.968089	too small
2.68	99.876096	too small
2.69	100.789727	too big
2.685	100.3322074	too big

2.68

10.

A solution to the equation $2x^3 + 9x + 15 = 0$ lies between -2 and -1.

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

-1.5	-5.25	too small
-1.4	-3.088	too small
-1.3	-1.094	too small
-1.2	0.744	too big
-1.25	-0.15625	too small

-1.2

11.

A solution to the equation $2x^3 + 5x + 100 = 0$ lies between -4 and -3.

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

-3.5	-3.25	too small
-3.4	4.392	too big
-3.45	0.62275	too big

-3.5

12.

A solution to the equation $2x^3 - 11x^2 - 22x + 16 = 0$ lies between 6 and 7.

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

6.5	-42.5	too small
6.6	-33.368	too small
6.7	-23.664	too small
6.8	-13.376	too small
6.9	-2.492	too small
6.95	3.17725	too big

6.9

13.

A solution to the equation $3x^3 - 2x^2 + 9x - 9 = 0$ lies between 0.9 and 1.0.

Use trial and improvement to find this solution to 2 decimal places.

0.95	0.317125	too big
0.94	0.184552	too big
0.93	0.053271	too big
0.92	-0.076736	too small
0.925	-0.01189	too small

0.93