

Trial and Improvement (to find area)

2



This rectangle has area 40cm^2

20

What are some possible dimensions?

2×20
 4×10
 5×8
 1×40



Area =
 100cm^2

Find some possible dimensions...where both numbers are whole numbers.

2×50 5×20
 10×10 1×100
 4×25



This rectangle has area 132cm^2

Find some possible dimensions...where both numbers are whole numbers.

Trial and Improvement (to do hard sums)

Use your calculator to work out the missing digits:

$$5\cancel{6} \times 89 = 4984$$

$$6\cancel{5} \times 35 = 22\cancel{7}5$$

$$\cancel{6}2 \times 65 = 4\cancel{0}30$$

Showing your working!

$$62\cancel{x} _4 = 45\cancel{ }8$$

$$8\cancel{2} \times 43 = 3\cancel{5}26$$

Showing all your working, work out:

1. $3\cancel{6} \times 62 = 22\cancel{3}2$

2. $8\cancel{4} \times 71 = 59\cancel{6}4$

3. $59 \times \cancel{2}1 = 12\cancel{3}9$

$$36 \times 62 = 2232$$

$$84 \times 71 = 5964$$

$$59 \times 21 = 1239$$

Trial and Improvement (E)

Using a systematic method solve the following problems:

$$23 \times 5_ = 12_8$$

$$_2 \times 69 = 289_$$

$$6_ \times 28 = 18_6$$

$$_7 \times 36 = 169_$$

$$8_3 \times 47 = 4056_$$

$$87 \times 3_1 = 2792_$$

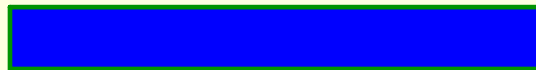
Trial and Improvement (D)

$$2._ \times 5.9 = 13._7$$



$$2.3 \times 5.9 = 13.57$$

$$9.2 \times _.9 = 63.4__$$



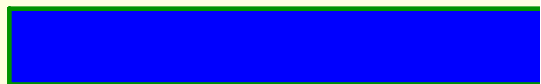
$$9.2 \times 6.9 = 63.48$$

$$6.4 \times 2._ = 17.9__$$



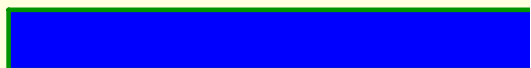
$$6.4 \times 2.8 = 17.92$$

$$9.7 \times _.6 = 34._2$$



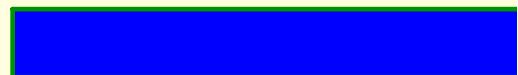
$$9.7 \times 3.6 = 34.92$$

$$8.3 \times 1.4__ = 12.20__$$



$$8.3 \times 1.47 = 12.201__$$

$$8.7__ \times 3.1 = 27.21__$$



$$8.78 \times 3.1 = 27.218$$

Use trial and improvement to solve these Fibonacci strips

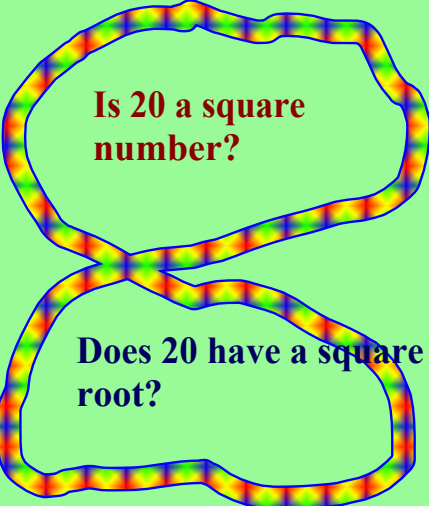
3	5	8	13	21		
7	8	15	23	38		
2	3	5	8	13		8 2 10 12 22
8	5	13	18	22	x	
10	4	14	18	35	x	
10	5	15	20	35	✓	
4	5	9	14	23	37	60
2	5	7	12	19	31	50
7	1	8	9	17	26	43
9	10	19	29	48	97	125
12	4	16	20	36	56	180

12 7 19 26 45 71 116 x ts

12 11 23 34 57 91 148 x ts

12 14 26 40 66 106 172 x ts

12 15 27 42 69 111 180 ✓



Is 20 a square number?

$$\sqrt{20} = 4.$$

Does 20 have a square root?

What do you know about the square root of 20?

Is 324 a square number?

$$18^2 = 324$$

Is 260 a square number?

$$13^2 = 169$$

$$14^2 = 196$$

$$15^2 = 225$$

$$16^2 = 256$$

$$17^2 = 289$$

304

Using your calculator find out if these numbers have a square root that is a whole number.

187

361

1690

1296

9801

text book page 301 C3 onwards

Using a calculator to solve problems

(x)

Find two numbers that differ by 1 and have a product of

1) $6 = 2 \times 3$

6) 462

$20 \times 21 = 420$ ts
 $21 \times 22 = 462$ ✓

2) $56 = 7 \times 8$

7) 1190

3) $110 = 10 \times 11$

8) 10100

4) 182

$14 \times 15 = 210$ ts
 $12 \times 13 = 156$ ts
 $13 \times 14 = 182$ ✓

9) 3192

5) 272

$17 \times 18 = 306$ ts
 $16 \times 17 = 272$ ✓

10) 3540

- 1) $2 \times 3 = 6$
- 2) $6 \times 7 = 56$
- 3) $10 \times 11 = 110$
- 4) $13 \times 14 = 182$
- 5) $16 \times 17 = 272$
- 6) $21 \times 22 = 462$
- 7) $34 \times 35 = 1190$
- 8) $100 \times 101 = 10100$
- 9) $56 \times 57 = 3192$
- 10) $59 \times 60 = 3540$

page 302 D1-D7

Not D2

Trial and improvement (C)

Find the solution to the equation $x(x+2) = 40$ to 1 decimal place.

x	$x(x+2)$	40
5	$5 \times 7 = 35$	ts
6	$6 \times 8 = 48$	tb
5.5	$5.5 \times 7.5 = 41$	tb
5.3	$5.3 \times 7.3 = 38.69$	bs
5.4	$5.4 \times 7.4 = 39.96$	bs

x is between 5.4 and 5.5

By using trial and improvement find the solution to $x^3 = 30$ to 1 decimal place.

x	x^3	30
10	1000	tb
3	27	ts
4	64	tb
3.5	42	tb
3.4	39	tb
3.1	29	ts
3.2	32	tb

x is between 3.1 and 3.2

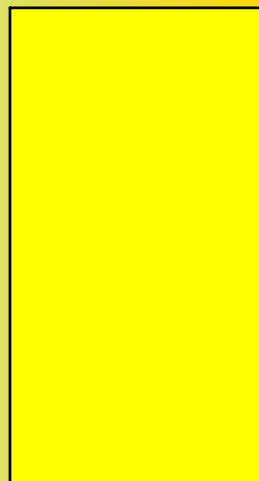
By using trial and improvement find the solution to $x^3 + x = 30$ to 1 dp.

Solve these equations by trial and improvement to 1 dp.

$$x^3 = 50$$

$$x^2 - x = 16$$

$$x(x-10) = 100$$



Trial and improvement (C)

Find the solution to the equation $x^2 + x = 130$ to 1 decimal place.

x	$x^2 + x$	130
7	$7^2 + 7 = 56$	ts
10	$10^2 + 10 = 110$	ts ←
12	$12^2 + 12 = 156$	tb
11	132	tb ←
10.5	120.7	ts
10.9	127.4	ts
10.7	124.9	ts

x is between 10.9 and 11

By using trial and improvement find the solution to $x^3 = 50$ to 1 decimal place.

x	x^3	50
3	27	ts
4	64	tb
3.5	42	ts
3.7	50.6	tb
3.6	46.6	ts

x is between 3.6 and 3.7

By using trial and improvement find the solution to $x^3 + x = 100$ to 1 dp.

4.5	95	ts	} x is between 4.5 + 4.6
4.6	101	tb	

Solve these equations by trial and improvement to 1 dp.

$x^2 - x = 16$

$x(x-10) = 100$

$12 \times (12 - 10) =$
 $\frac{x \times (x-10)}{100}$

x	$x^2 - x$	16
5	20	tb
4	12	ts
* 4.5	15.75	ts
4.7	17.39	tb
* 4.6	16.56	tb
4.55	16.152	tb
x=4.5		

x	$x(x-10)$	100
15	75	ts
17	119	tb
16	96	ts
16.5	107.25	tb
16.3	102.69	tb
16.2	100.44	tb
16.1	98.21	ts



The area of this shape is 552cm^2 .

The length is one cm longer than the width.
Find the length and width.

length	width	area	too big /small



The area of this shape is 2970cm^2 .

The length is one cm longer than the width.
Find the length and width.

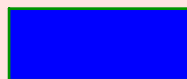
length	width	area	too big /small



The area of this shape is 2679cm^2 .
The length is 10cm longer than the width.

Find the length and width.

length	width	area	too big /small



The area of this shape is 552cm^2 .
The length is one cm longer than the width.

Find the length and width.

length	width	area	too big /small

Attachments

fibonnaci strips.xls