Does counting by 25 seem hard to you?

Try thinking of quarters.
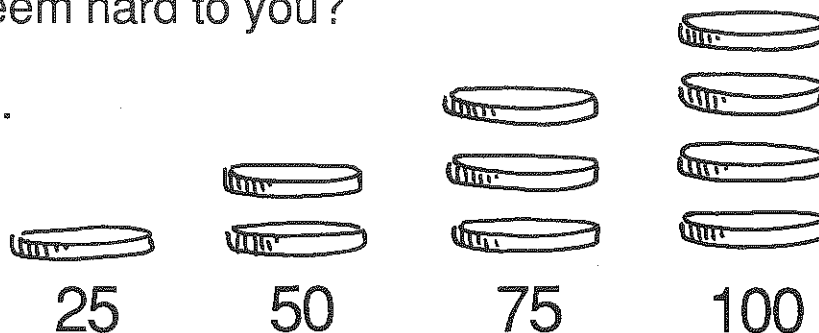
| 25 | 50 | 75 | 100 |

Think of counting out $5 in quarters.

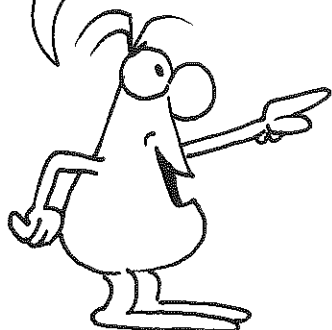| 25	50	75	100
125	150	175	200
225	250	275	300
325	350	375	400
425	450	475	500
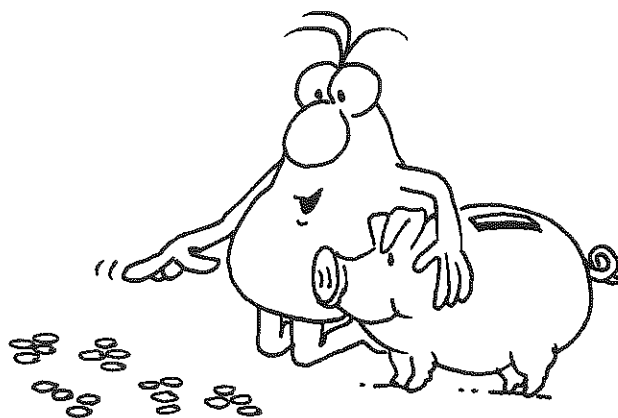
What pattern do you see?

Use that pattern to help you
add these in your head.

$125 + 25 + 25 = ?$

$75 + 25 + 50 = ?$

TRY THESE IN YOUR HEAD.

Think quarters.

1. $50 + 25$
2. $150 + 25$
3. $250 + 25$
4. $225 + 25 + 25$
5. $100 + 25 + 25$

6. $350 + 25$
7. $75 + 50$
8. $225 + 50$
9. $250 + 75 + 25$
10. $125 + 25 + 50 + 25$

POWER BUILDER A

1. 75 + 25 = _____

2. 50 + 25 = _____

3. 225 + 25 = _____

4. 100 + 25 + 25 = _____

5. 300 + 50 = _____

6. 175 + 25 + 25 = _____

7. 75 + 50 = _____

8. 75 + 25 + 50 = _____

9. 325 + 50 = _____

10. 225 + 25 + 50 = _____

11. 175 + 25 + 25 = _____

12. 650 + 25 + 50 = _____

13. 400 + 75 + 50 = _____

14. 50 + 75 + 25 = _____

15. 250 + 75 + 50 = _____

16. 350 + 75 + 50 = _____

17. 425 + 50 + 75 = _____

18. 200 + 75 + 50 = _____

19. 325 + 50 + 75 = _____

20. 250 + 75 + 75 = _____

THINK IT THROUGH

Suppose you had five quarters. Then someone gave you twice as many more. How much money do you have now?

POWER BUILDER B

1. 150 + 25 = _____

2. 75 + 25 = _____

3. 325 + 25 = _____

4. 200 + 50 + 25 = _____

5. 400 + 50 = _____

6. 275 + 25 + 25 = _____

7. 175 + 50 = _____

8. 75 + 25 + 50 = _____

9. 425 + 50 = _____

10. 325 + 25 + 50 = _____

11. 275 + 50 = _____

12. 550 + 25 + 50 = _____

13. 200 + 75 + 50 = _____

14. 150 + 75 + 25 = _____

15. 250 + 75 + 50 = _____

16. 550 + 75 + 50 = _____

17. 825 + 50 + 75 = _____

18. 300 + 50 + 75 = _____

19. 625 + 50 + 75 = _____

20. 350 + 75 + 75 = _____

THINK IT THROUGH

Suppose you had ten quarters. Then someone gave you half as much as you already had. But then you lost one quarter. How much money do you have now?
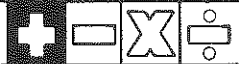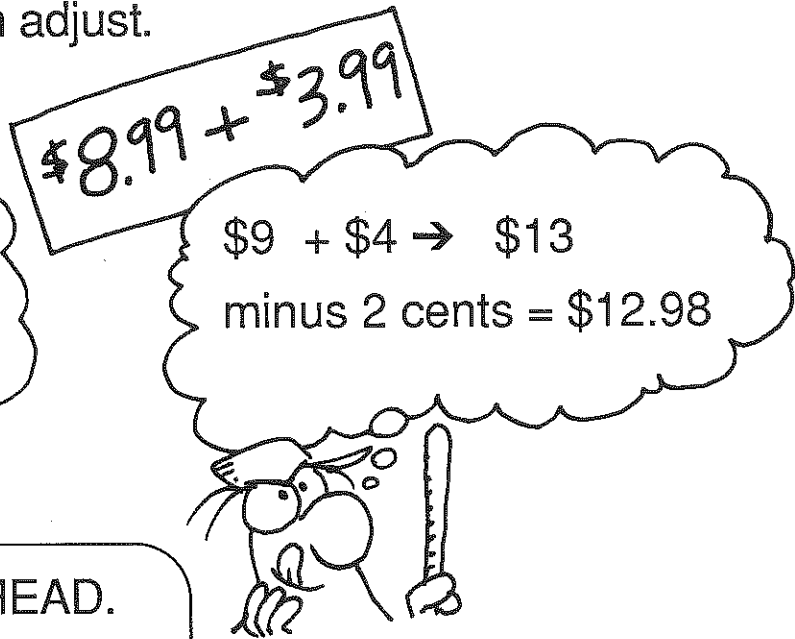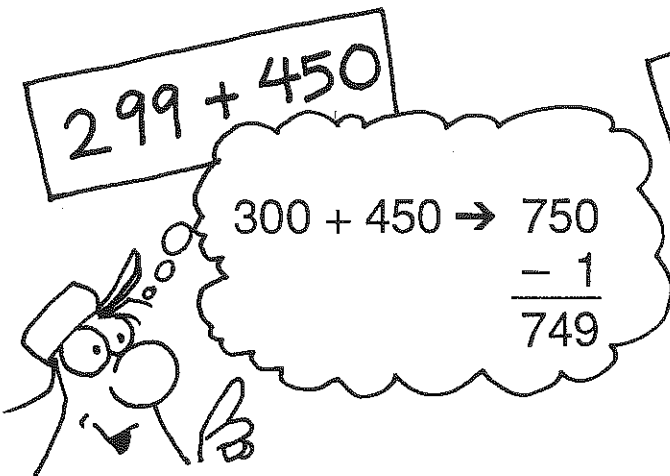
Did you ever wonder
why so many prices
end in 98 and 99?

Studies show that more
people will buy something
priced at $9.99 than at $10.
That's why we see prices like these.

NOW ONLY $7999

$9.99

$4.98

$39.99

$1.98

In mental math, you can clean up numbers
ending in 8 or 9 to make them easy to add.

Round up . . .   add . . .   then adjust.

2.99 + 450

$8.99 + $3.99

300 + 450 → 750
$$\begin{array}{r} 750 \\ -\ 1 \\ \hline 749 \end{array}$$

$9 + $4 → $13
minus 2 cents = $12.98

TRY THESE IN YOUR HEAD.
Clean up the 8's and 9's.

1. 65 + 29
2. 88 + 69
3. 254 + 499
4. 478 + 899
5. 265 + 98
6. 4314 + 898
7. $2.75 + $1.99
8. $11.50 + $3.99
9. $59.80 + $8.99
10. $19.98 + $25.50

POWER BUILDER A

1. 35 + 29 = _____
2. 54 + 49 = _____
3. 26 + 98 = _____
4. 45 + 39 = _____
5. 56 + 29 = _____
6. 125 + 99 = _____
7. 423 + 498 = _____
8. 807 + 99 = _____
9. 244 + 699 = _____
10. 1524 + 299 = _____

11. $3.22 + $1.99 = _____
12. $0.75 + $0.98 = _____
13. $2.85 + $1.98 = _____
14. $15.35 + $0.98 = _____
15. $7.45 + $9.98 = _____
16. $4.25 + $1.99 = _____
17. $0.98 + $0.65 = _____
18. $2.35 + $1.99 = _____
19. $13.45 + $10.98 = _____
20. $5.98 + $9.99 = _____

THINK IT THROUGH

The price of a daily paper at the newsstand is $0.35 per copy. The regular subscription rate is $0.24 per copy. How much can you save per week by subscribing rather than buying a paper daily?

POWER BUILDER B

1. 25 + 49 = _____
2. 63 + 28 = _____
3. 45 + 98 = _____
4. 154 + 99 = _____
5. 199 + 267 = _____
6. 456 + 399 = _____
7. 2145 + 699 = _____
8. 399 + 198 = _____
9. 4256 + 498 = _____
10. 298 + 275 = _____

11. $0.26 + $0.99 = _____
12. $2.45 + $1.99 = _____
13. $0.87 + $0.98 = _____
14. $1.45 + $0.98 = _____
15. $4.52 + $4.99 = _____
16. $15.99 + $2.65 = _____
17. $7.98 + $9.75 = _____
18. $5.35 + $19.99 = _____
19. $45.86 + $29.99 = _____
20. $7.98 + $18.75 = _____

THINK IT THROUGH

The price of a monthly magazine at the newsstand is $1.75. The subscription rate is $1.00 per issue. How much can you save in a year by subscribing rather than buying the magazine monthly?

$ .99 + $1.99

$1 + $2 → $3
minus 2 cents
or $2.98

To **add** 8's and 9's in your head, you clean them up by rounding to "make tens," then adjust the answer.

Here's good news: The same idea works for subtraction!

75 − 29

$$75 - 30 \rightarrow 45$$
$$+ 1$$
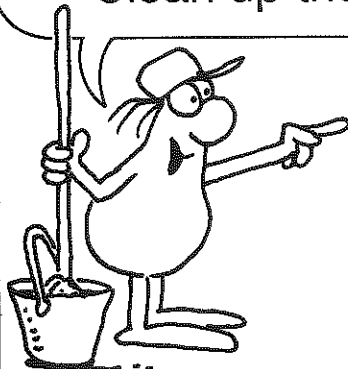$$\overline{46}$$

827 − 198

$$827 - 200 \rightarrow 627$$
$$+ 2$$
$$\overline{629}$$

$20 − $15.98

$20 − $16 → $4
plus 2 cents = $4.02

TRY THESE IN YOUR HEAD.

Clean up the 8's and 9's.

1. 83 − 39	**3.** 427 − 198	**7.** $8.36 − $5.99
2. 95 − 59	**4.** 872 − 399	**8.** $20 − $13.98
	5. 265 − 98	**9.** $40 − $29.99
	6. 5236 − 999	**10.** $100 − $59.98

POWER BUILDER A

1. 82 − 29 = _____

2. 45 − 19 = _____

3. 265 − 98 = _____

4. 74 − 49 = _____

5. 81 − 28 = _____

6. 436 − 189 = _____

7. 724 − 199 = _____

8. 615 − 98 = _____

9. 246 − 198 = _____

10. 1754 − 999 = _____

11. $5.00 − $1.99 = _____

12. $5.00 − $0.98 = _____

13. $5.00 − $3.99 = _____

14. $10.00 − $3.98 = _____

15. $20.00 − $9.98 = _____

16. $20.00 − $14.99 = _____

17. $5.00 − $2.98 = _____

18. $10.00 − $4.99 = _____

19. $50.00 − $29.99 = _____

20. $20.00 − $4.98 = _____

THINK IT THROUGH
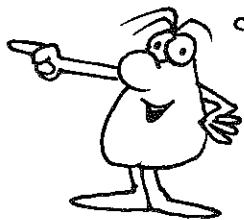
If you buy a pair of jeans for $11.99 and a belt for $5.99, how much change will you get back from $20.00? (Don't figure any tax.)

POWER BUILDER B

1. 64 − 29 = _____

2. 83 − 49 = _____

3. 75 − 48 = _____

4. 246 − 199 = _____

5. 435 − 299 = _____

6. 1527 − 999 = _____

7. 752 − 198 = _____

8. 4526 − 998 = _____

9. 1800 − 499 = _____

10. 1750 − 198 = _____

11. $0.75 − $0.59 = _____

12. $0.50 − $0.28 = _____

13. $2.00 − $0.98 = _____

14. $10.00 − $4.98 = _____

15. $20.00 − $15.99 = _____

16. $100.00 − $49.99 = _____

17. $50.00 − $19.98 = _____

18. $20.00 − $12.98 = _____

19. $20.00 − $8.99 = _____

20. $50.00 − $18.99 = _____

THINK IT THROUGH

If you buy one T-shirt for $8.98 and two records at $4.99 each, how much change will you get back from $20.00? (Don't figure any tax.)
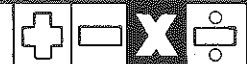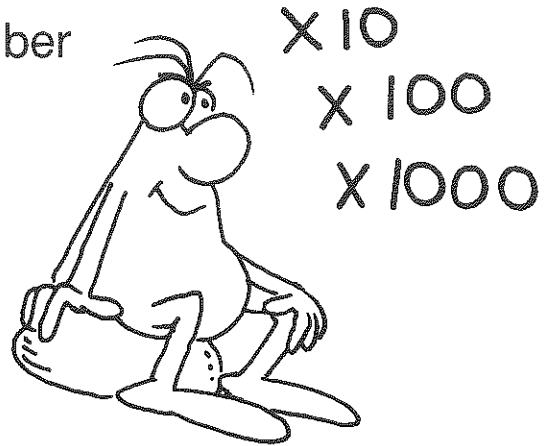
Here's a simple way to multiply any number by 10, or 100, or 1000, in your head.

×10
×100
×1000

Look for a pattern in the zeros.

$5 \times 10 = 5$ **tens** $= 50$
$5 \times 100 = 5$ **hundreds** $= 500$
$5 \times 1000 = 5$ **thousands** $= 5000$

To multiply any number . . .
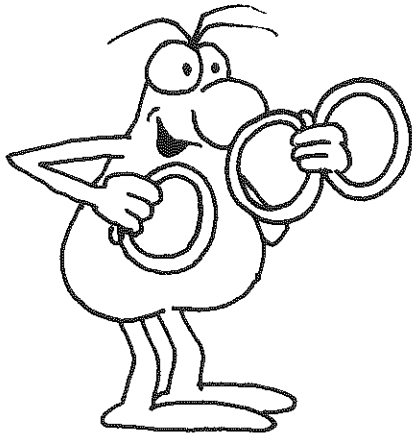
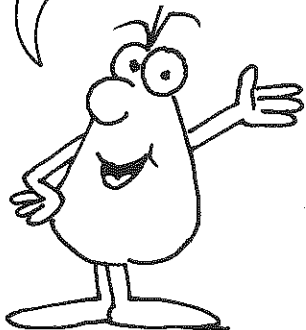| by 10 | → | tack on ONE trailing zero. |
| by 100 | → | tack on TWO trailing zeros. |
| by 1000 | → | tack on THREE trailing zeros. |

9×1000

Here's how a mental-math pro thinks . . .

9 **thousands** . . . so tack on three zeros after the 9.
9000

TRY THESE IN YOUR HEAD.

Tack on trailing zeros.

1. 3×10	**3.** 8×1000	**7.** 100×8
2. 7×100	**4.** 10×13	**8.** 7×1000
	5. 23×100	**9.** 1000×14
	6. 1000×11	**10.** 10×162

POWER BUILDER A

1. 2 × 10 = _____
2. 5 × 10 = _____
3. 10 × 7 = _____
4. 4 × 100 = _____
5. 3 × 100 = _____
6. 1000 × 5 = _____
7. 7 × 1000 = _____
8. 2 × 1000 = _____
9. 8 × 100 = _____
10. 10 × 9 = _____

11. 11 × 10 = _____
12. 10 × 27 = _____
13. 125 × 10 = _____
14. 23 × 100 = _____
15. 69 × 100 = _____
16. 125 × 100 = _____
17. 13 × 1000 = _____
18. 1000 × 18 = _____
19. 275 × 1000 = _____
20. 1000 × 51 = _____

THINK IT THROUGH

If I pay 26 cents for a paper and sell it for 35 cents, how much money will I make selling 100 papers?

POWER BUILDER B

1. 4 × 10 = _____
2. 6 × 10 = _____
3. 10 × 3 = _____
4. 2 × 100 = _____
5. 6 × 100 = _____
6. 1000 × 3 = _____
7. 6 × 1000 = _____
8. 4 × 1000 = _____
9. 100 × 7 = _____
10. 15 × 100 = _____

11. 13 × 10 = _____
12. 19 × 10 = _____
13. 10 × 25 = _____
14. 27 × 100 = _____
15. 100 × 73 = _____
16. 375 × 100 = _____
17. 19 × 1000 = _____
18. 375 × 1000 = _____
19. 1000 × 12 = _____
20. 1000 × 68 = _____

THINK IT THROUGH

John bought a baseball card for 30 cents and sold it for 45 cents. He then bought it back for 40 cents and sold it again for 50 cents. How much money did he make?

Here's a trick for multiplying in your head.
Look at the zeros. What's the pattern?

$5 \times 30 = 5 \times 3$ **tens** $= 15 \times 10 = 150$
$7 \times 400 = 7 \times 4$ **hundreds** $= 28 \times 100 = 2800$
$6 \times 3000 = 6 \times 3$ **thousands** $= 18 \times 1000 = 18,000$

When one number has trailing zeros . . .

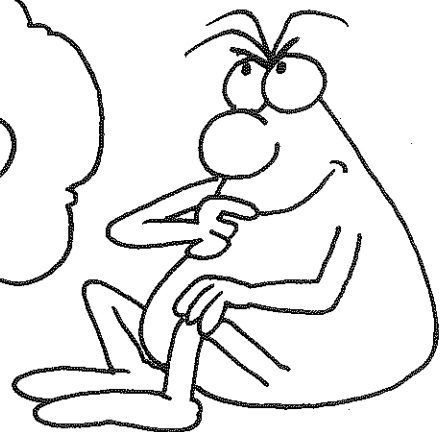1. Cut off the trailing zeros.

2. Multiply the remaining numbers.

3. Tack the trailing zeros onto your answer.

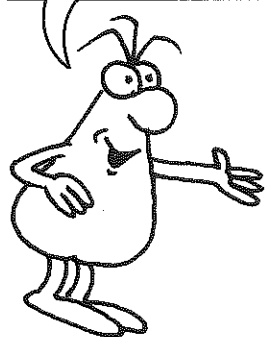Here's how a
mental-math
pro thinks . . .

9×5000

$9 \times 5\boxed{000}$

$45,\boxed{000}$

TRY THESE IN YOUR HEAD.
Tack on the right number of zeros.

1. 5×30	**3.** 8×800	**7.** 8×70
2. 60×4	**4.** 9×40	**8.** 7×700
	5. 2×4000	**9.** 200×13
	6. 12×200	**10.** 3000×8

POWER BUILDER A

1. 4 × 80 = _____

2. 70 × 7 = _____

3. 9 × 90 = _____

4. 80 × 3 = _____

5. 12 × 30 = _____

6. 4 × 500 = _____

7. 900 × 5 = _____

8. 800 × 6 = _____

9. 8 × 300 = _____

10. 12 × 200 = _____

11. 3000 × 9 = _____

12. 4 × 2000 = _____

13. 8 × 3000 = _____

14. 7 × 7000 = _____

15. 12 × 4000 = _____

16. 7 × 6000 = _____

17. 8 × 90 = _____

18. 500 × 5 = _____

19. 8 × 7000 = _____

20. 4 × 400 = _____

THINK IT THROUGH

Which are worth more:
40 nickels or 25 dimes?

POWER BUILDER B

1. 8 × 80 = _____

2. 10 × 7 = _____

3. 9 × 30 = _____

4. 80 × 4 = _____

5. 12 × 20 = _____

6. 5 × 500 = _____

7. 900 × 2 = _____

8. 800 × 2 = _____

9. 3 × 300 = _____

10. 11 × 700 = _____

11. 4000 × 7 = _____

12. 5 × 8000 = _____

13. 8 × 2000 = _____

14. 7 × 3000 = _____

15. 11 × 4000 = _____

16. 6 × 600 = _____

17. 9 × 60 = _____

18. 4000 × 5 = _____

19. 7 × 800 = _____

20. 8 × 4000 = _____

THINK IT THROUGH

Which are worth the most:
35 nickels, 20 dimes, or 7 quarters?

50 X 300
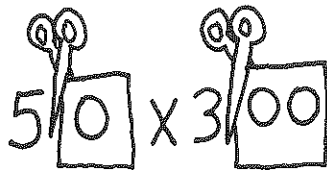
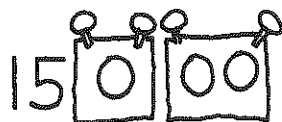You can multiply this quickly in your head.
Just follow these steps:

$5\!\!\!/0 \times 3\!\!\!/00$

- Cut off the trailing zeros.

$5 \times 3 = 15$

- Multiply the remaining numbers.

$15\boxed{0}\boxed{00}$

- Collect ALL the zeros and tack them onto your answer.

Here's how a mental-math pro thinks . . .

400×30
$4 \times 3 = 12$
$12,000$

TRY THESE IN YOUR HEAD.

Tack on ALL the trailing zeros.
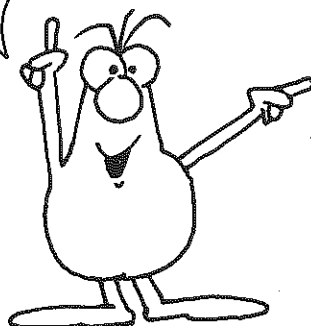
1. 20×50	**3.** 300×300	**7.** 50×50
2. 400×90	**4.** 80×900	**8.** 70×3000
	5. 60×200	**9.** 60×70
	6. 7000×500	**10.** 120×40

POWER BUILDER A

1. 10 × 10 = _____
2. 20 × 20 = _____
3. 40 × 50 = _____
4. 90 × 90 = _____
5. 60 × 70 = _____
6. 500 × 20 = _____
7. 30 × 400 = _____
8. 900 × 10 = _____
9. 50 × 500 = _____
10. 700 × 80 = _____

11. 500 × 500 = _____
12. 300 × 700 = _____
13. 800 × 100 = _____
14. 100 × 100 = _____
15. 900 × 900 = _____
16. 10 × 2000 = _____
17. 20 × 8000 = _____
18. 5000 × 60 = _____
19. 80 × 4000 = _____
20. 800 × 1000 = _____

**THINK IT
THROUGH**

A pendulum swings 15 times in 30 seconds.
How many times will it swing in an hour?

POWER BUILDER B

1. 40 × 40 = _____
2. 30 × 20 = _____
3. 40 × 70 = _____
4. 80 × 80 = _____
5. 90 × 70 = _____
6. 200 × 50 = _____
7. 40 × 300 = _____
8. 800 × 10 = _____
9. 30 × 300 = _____
10. 800 × 70 = _____

11. 600 × 600 = _____
12. 700 × 300 = _____
13. 500 × 100 = _____
14. 200 × 100 = _____
15. 800 × 800 = _____
16. 20 × 2000 = _____
17. 80 × 2000 = _____
18. 6000 × 50 = _____
19. 40 × 8000 = _____
20. 700 × 1000 = _____

**THINK IT
THROUGH**

My heart beats 20 times in 15 seconds.
How many times will it beat in an hour?

$$52 \times 7$$

Can you multiply this in your head?

It's easy if you break up one factor into smaller parts. Like this . . .

BREAK UP 52 . . . $52 \rightarrow 50 + 2$
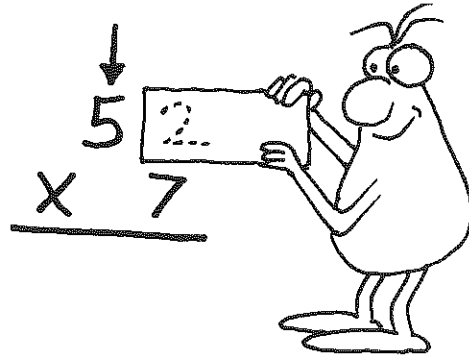
MULTIPLY THE PARTS, STARTING AT THE LEFT . . . $\times \quad 7$

ADD . . . $350 + 14 = 364$

SO . . . $7 \times 52 = 364$

MENTAL MATH TIP $\Rightarrow$

Think of it as multiplying from the left.

$$5\ 2. \times 7$$

TRY THESE IN YOUR HEAD.

Multiply from the left.
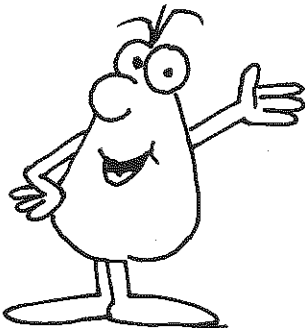
1. 15×7
2. 23×5
3. 36×8
4. 3×54
5. 16×8
6. 31×4
7. 3×28
8. 7×27
9. 85×50
10. 20×28

POWER BUILDER A

1. 31 × 7 = _____

2. 41 × 3 = _____

3. 4 × 22 = _____

4. 3 × 83 = _____

5. 5 × 51 = _____

6. 6 × 83 = _____

7. 8 × 94 = _____

8. 5 × 58 = _____

9. 2 × 78 = _____

10. 56 × 2 = _____

11. 8 × 58 = _____

12. 6 × 66 = _____

13. 4 × 48 = _____

14. 2 × 96 = _____

15. 7 × 77 = _____

16. 2 × 59 = _____

17. 7 × 51 = _____

18. 30 × 41 = _____

19. 25 × 30 = _____

20. 55 × 40 = _____

THINK IT THROUGH

Which two different whole numbers that add to 20 will give the largest product?

POWER BUILDER B

1. 21 × 7 = _____

2. 41 × 2 = _____

3. 3 × 22 = _____

4. 2 × 84 = _____

5. 4 × 51 = _____

6. 6 × 74 = _____

7. 9 × 83 = _____

8. 65 × 5 = _____

9. 87 × 2 = _____

10. 55 × 3 = _____

11. 4 × 45 = _____

12. 5 × 55 = _____

13. 5 × 58 = _____

14. 2 × 76 = _____

15. 6 × 96 = _____

16. 2 × 48 = _____

17. 6 × 57 = _____

18. 30 × 52 = _____

19. 20 × 25 = _____

20. 45 × 50 = _____

THINK IT THROUGH

Which two odd numbers that add to 20 will give the smallest product?

MULTIPLY IN YOUR HEAD

$$625$$
$$\times\ 4$$

625? But how can I work with such a large number in my head?

EASY. Break it up into smaller parts.
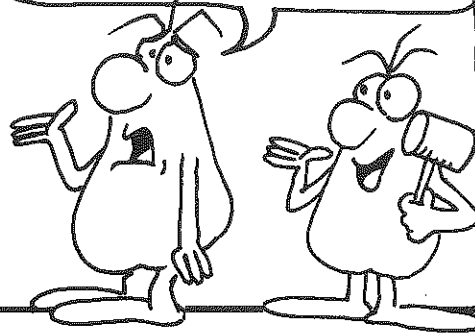
Like this . . .

BREAK UP 625 . . . $600 + 25$

MULTIPLY THE PARTS FROM THE LEFT . . . $\times\ \ \ \ \ 4$

ADD . . . $2400 + 100 = 2500$

Now try this one.
How will you break up 423?

$$423$$
$$\times\ 3$$

TRY THESE IN YOUR HEAD.
Multiply from the left.

1. 8×625 3. 112×8 7. 4×521
2. 4×256 4. 5×125 8. 3×252
                      5. 525×2 9. 507×8
                      6. 611×4 10. 7×911

POWER BUILDER A

1. 2 × 434 = _____
2. 121 × 5 = _____
3. 4 × 124 = _____
4. 135 × 2 = _____
5. 325 × 3 = _____
6. 7 × 303 = _____
7. 9 × 209 = _____
8. 801 × 6 = _____
9. 505 × 5 = _____
10. 9 × 111 = _____

11. 2 × 435 = _____
12. 165 × 5 = _____
13. 188 × 5 = _____
14. 525 × 8 = _____
15. 4 × 256 = _____
16. 123 × 3 = _____
17. 525 × 4 = _____
18. 4 × 625 = _____
19. 5 × 808 = _____
20. 505 × 6 = _____

THINK IT THROUGH

Pick three two-digit numbers.
Multiply each number by 101.
What pattern do you notice?

POWER BUILDER B

1. 2 × 344 = _____
2. 122 × 5 = _____
3. 4 × 123 = _____
4. 148 × 2 = _____
5. 425 × 3 = _____
6. 404 × 7 = _____
7. 309 × 4 = _____
8. 6 × 801 = _____
9. 5 × 705 = _____
10. 519 × 2 = _____

11. 2 × 345 = _____
12. 145 × 5 = _____
13. 166 × 5 = _____
14. 425 × 8 = _____
15. 4 × 255 = _____
16. 3 × 213 = _____
17. 505 × 4 = _____
18. 3 × 423 = _____
19. 235 × 2 = _____
20. 9 × 311 = _____

THINK IT THROUGH

Study these problems: 114 × 1001 = 114,114
                      236 × 1001 = 236,236
Use the pattern to multiply these:
  472 × 1001   203 × 1001   47 × 1001
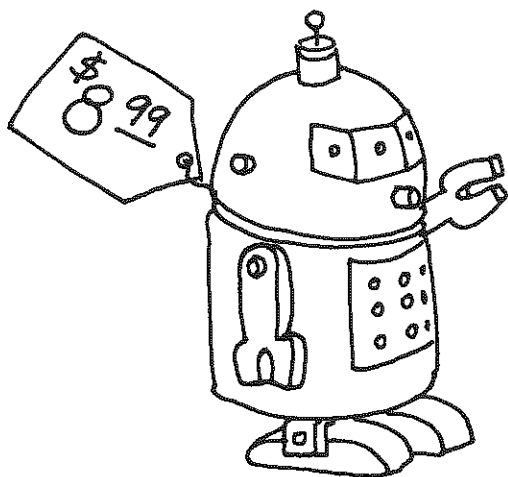
There's an easy way to multiply this in your head.

6×99

THINK . . .   99 is ONE less than 100.

SO . . . 6×99 is SIX less than 600.

$$6 \times 99 = 600 - 6 = 594$$

$8.99

This is a good strategy to use with prices.

At $8.99 each, what would 6 robots cost?

Figure it out in your head!

TRY THESE IN YOUR HEAD.

Clean up the 9's, then adjust.

1. 8×99	**3.** 19×6	**7.** 15 at $1.99
2. 7×199	**4.** 29×5	**8.** 4 at $0.99
	5. 6 at $4.99	**9.** 3 at $2.49
	6. 3 at $1.49	**10.** 8 at $3.99

POWER BUILDER A

1. 4 × 79 = _____

2. 8 × 79 = _____

3. 3 × 79 = _____

4. 6 × 79 = _____

5. 2 × 79 = _____

6. 8 × 199 = _____

7. 6 × 399 = _____

8. 5 × 599 = _____

9. 3 × 799 = _____

10. 2 × 1999 = _____

11. 5 × $7.99 = _____

12. 2 × $39.99 = _____

13. 4 × $11.99 = _____

14. 3 × $19.99 = _____

15. 7 × $7.99 = _____

16. 3 × $2.99 = _____

17. 5 × $19.99 = _____

18. 4 × $1.99 = _____

19. 15 × $3.99 = _____

20. 5 × $49.99 = _____

THINK IT THROUGH
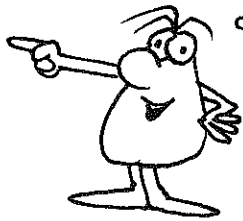
What is the mystery number? Clue: If you subtract the mystery number from 1000, you get a difference that is equal to 3 times 199.

POWER BUILDER B

1. 8 × 39 = _____

2. 6 × 59 = _____

3. 4 × 89 = _____

4. 5 × 79 = _____

5. 7 × 29 = _____

6. 8 × 29 = _____

7. 6 × 499 = _____

8. 5 × 699 = _____

9. 3 × 899 = _____

10. 3 × 2999 = _____

11. 6 × $3.99 = _____

12. 3 × $19.99 = _____

13. 2 × $59.99 = _____

14. 7 × $1.99 = _____

15. 4 × $6.99 = _____

16. 6 × $1.99 = _____

17. 3 × $9.99 = _____

18. 5 × $29.99 = _____

19. 2 × $17.99 = _____

20. 25 × $1.99 = _____

THINK IT THROUGH

What is the mystery number? Clue: The mystery number is twice as much as 2 times 49.