We have

$$\begin{array}{r} YE \\ ME\ \times \\ \hline TTT \end{array}$$

where Y, E, M, T represent different digits.

What is $E+M+T+Y$?

By considering the units digit, we have

$$E^2 \equiv T \mod 10$$

E	T
0	0
1	1
2	4
3	9
4	6
5	5
6	6
7	9
8	4
9	1

So T must be $0, 1, 4, 5, 6$ or 9.

IF $E = 0, 1, 5$ or 6 then $T = E$ which is not possible (numbers need to be distinct)

E	T
0	0
1	1
2	4
3	9
4	6
5	5
6	6
7	9
8	4
9	1

Check the remaining cases:

$$TTT = T \times 111$$
$$= T \times 3 \times 37$$

$T=1$: $111 = 3 \times 37$ NO

$T=4$: $444 = 4 \times 3 \times 37 = 12 \times 37$ NO

$T=6$: $666 = 6 \times 3 \times 37 = 18 \times 37$ NO

$T=9$: $999 = 9 \times 3 \times 37 = 27 \times 37$ YES

We need the units digits of the two-digit Factors to be equal, and 27×37 is

the only product above which Fits this requirement.

So $T=9$ and $E=7$.

Then either $Y=2$ and $M=3$ or $Y=3$ and $M=2$.

In both cases:

$$E+M+T+Y = 7+2+9+3$$

$$= \boxed{21}$$