\[ T(n) = 2T\left(\frac{n}{4}\right) + \frac{n}{2} \]

\[
\begin{align*}
a &= 2 \\
b &= 4 \\
d &= \frac{1}{2}
\end{align*}
\]

\[
\frac{a}{b} = \frac{2}{4} = \frac{1}{2} = 1 \Rightarrow n^d \log_b(n) = n^{\frac{1}{2}} \log(n)
\]

```c
int foo(int a, int b, int r)
{
    d = r - e;
    e = (l + d);  // \text{line missing}
    x = foo(a, \overline{b}, v);  // \text{line missing}
    x += foo(a, r - d, d, r);
    return x;
}
```
RSA

Given \( N = 33 \), \( e = 7 \), \( M^e = 17 \)

find \( p, q, d, \mu \)

\( N = p \cdot q \)

\( ed = 1 \mod (p-1)(q-1) \)

\[ 2 \cdot d \equiv 1 \mod 20 \]

\[ 20x + 2y = 1 \]

\[ d = 3 \]

\[ x = y^1 \]

\[ y = x' - 1a/6b'y' \]

\[ \mu = (M^e)^d \mod N \]