1. $\boxed{3}$ years

2. $\boxed{\dfrac{1}{2}}$

3. We need to compute the sum $-30-29-28-\ldots+24+25+26$. Notice that the sum $-26-25-24-\ldots+24+25+26=0$, so all we have to calculate is $-27-28-29-30=$ $\boxed{-114}$

4. $\boxed{123}$

5. $\boxed{6}$

6. $\boxed{302}$

7. $\boxed{24}$

8. $\boxed{10}$

9. If a number's decimal is moved to digits to the right, it is multiplied by 100. Let x be our number. Set up an equation: $\frac{100x-x}{11}=21$. Now solve: $\frac{99x}{11}=9x=21$, so $x=\frac{21}{9}=\boxed{\dfrac{7}{3}}$

10. $\boxed{6}$

11. $\boxed{\$99}$

12. $\boxed{12}$ dimes

13. It is more advantageous to rent 40-passenger buses, so we will rent as many as possible. $475 \div 40 = 11R35$. So we will have 11 40-passenger buses, which costs $11 \times 170 = 1870$. It is cheaper to put the last 35 students in a 40-passenger bus than two 25-passenger buses, so we will rent 12 40-passenger buses in all. It costs $12 \times 170 = \boxed{\$2040}$ (the answer key was wrong).

14. $11^{20{,}000} \approx 10^{20{,}000}$ which has 20,001 digits.

    $5^{30{,}000} = (5^{10})^{3000} = 9{,}765{,}625^{3000} < 10{,}000{,}000^{3{,}000}$ which has less than 21,000 digits.

    $2^{70{,}000} = (2^{10})^{7{,}000} = 1024^{7{,}000} > 1000^{7{,}000}$ which has more than 21,000 digits.

    Therefore $\boxed{2^{70{,}000}}$ has greatest value.

15. Draw out the amounts of the jars after the first few pours.

    1st pour: Jar 1 (.5) Jar 2 (.5)

    $\Leftarrow \frac{1}{3}$

    2nd pour: Jar 1($\frac{2}{3}$) Jar 2 ($\frac{1}{3}$)

    $\Rightarrow \frac{1}{4}$

    3rd pour: Jar 1 (.5) Jar 2 (.5)

$\Leftarrow \frac{1}{5}$

4nd pour: Jar 1($\frac{3}{5}$) Jar 2 ($\frac{2}{5}$)

$\Rightarrow \frac{1}{6}$

5th pour: Jar 1 (.5) Jar 2 (.5)

We notice a few patterns. On the odd numbered pours, the fractions return to half and half. On the even numbered pours, the fractions' denominators are the proportion of water moved (ex: the 4th pour moved $\frac{1}{5}$ water, and the jars had $\frac{3}{5}$ and $\frac{2}{5}$). So we know on the 10th pour, we will move $\frac{1}{11}$ of the water in Jar 2 to Jar 1, and by following the pattern, we find that Jar 1 will have $\boxed{\frac{6}{11}}$ quarts water.