

Name: _____

Date: _____

1. (a) $\boxed{\frac{21}{5} = 4\frac{1}{5}}$ (b) $\boxed{\frac{23}{3} = 7\frac{2}{3}}$ (c) $\boxed{-\frac{3425}{999} = -3\frac{428}{999}}$

(d) Let x be the fraction such that $x = 0.1\overline{27}$. Now we multiply both sides by 10^n , where n is the number of repeating digits. For instance, if there is one digit that repeats over and over, we multiply by $10^1 = 10$. If there are three digits that repeat, we multiply by $10^3 = 1000$. Here we have two repeating digits, so we multiply both sides by $10^2 = 100$, which gives us $100x = 12.72727\dots$. So we have two equations:

$$100x = 12.727272727\dots \quad (1)$$

$$x = 0.127272727\dots \quad (2)$$

We subtract (1) - (2), and we get $99x = 12.72727\dots - 0.12727\dots = 12.7 - 0.1 = 12.6$. So we have $99x = 12.6 = \frac{126}{10} = \frac{63}{5}$. We solve for x by dividing both sides by 99: $x = \frac{63}{5} \cdot \frac{1}{99} = \frac{63}{495} =$

$$\boxed{\frac{7}{55}}$$

2. $\boxed{\frac{511}{256} = 1\frac{255}{256}}$

3. $\boxed{\frac{7}{8}}$

4. $\boxed{15\frac{5}{6} = \frac{95}{6}}$

5. $\boxed{21\frac{9}{13} = \frac{282}{13}}$

s

6. $(1 + \frac{7}{13}) + (1 + 2 \times \frac{7}{13}) + (1 + 3 \times \frac{7}{13}) + (1 + 4 \times \frac{7}{13}) + (1 + 5 \times \frac{7}{13})$

$$= 1 + 1 + 1 + 1 + 1 + \frac{7}{13} + \frac{2 \times 7}{13} + \frac{3 \times 7}{13} + \frac{4 \times 7}{13} + \frac{5 \times 7}{13}$$

$$= 5 + \frac{7}{13} + \frac{14}{13} + \frac{21}{13} + \frac{28}{13} + \frac{35}{13}$$

$$= 5 + \frac{7 + 14 + 21 + 28 + 35}{13}$$

$$= 5 + \frac{105}{13}$$

$$= 5 + 8\frac{1}{13}$$

$$= \boxed{13\frac{1}{13}}$$

7. $0.\overline{1} + 0.\overline{2} + 0.\overline{3} + 0.\overline{4} + 0.\overline{5} + 0.\overline{6} + 0.\overline{7} + 0.\overline{8} + 0.\overline{9}$



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Problem Set 25.2 - Fractions

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$$\begin{aligned} &= \frac{1}{9} + \frac{2}{9} + \frac{3}{9} + \frac{4}{9} + \frac{5}{9} + \frac{6}{9} + \frac{7}{9} + \frac{8}{9} + \frac{9}{9} \\ &= \frac{1+2+3+4+5+6+7+8+9}{9} \\ &= \frac{45}{9} \\ &= \boxed{5} \end{aligned}$$

8. $\boxed{10}$

9. $\boxed{\frac{5}{2}}$

10. We start with the hint and prime factorize the numerators:

$$455 = 5 \times 7 \times 13$$

$$1326 = 6 \times 13 \times 17$$

$$2223 = 9 \times 13 \times 19$$

Now we have

$$\begin{aligned} \frac{455}{7 \times 11 \times 13} + \frac{1326}{11 \times 13 \times 17} + \frac{2223}{13 \times 17 \times 19} &= \frac{5 \times 7 \times 13}{7 \times 11 \times 13} + \frac{6 \times 13 \times 17}{11 \times 13 \times 17} + \frac{9 \times 13 \times 19}{13 \times 17 \times 19} \\ &= \frac{5}{11} + \frac{6}{11} + \frac{9}{17} \\ &= 1 + \frac{9}{17} \\ &= \boxed{1\frac{9}{17}} \end{aligned}$$