
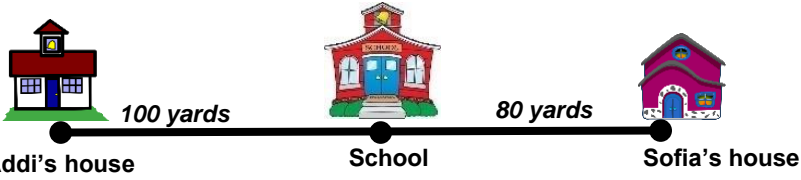






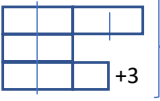
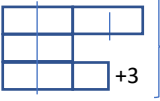
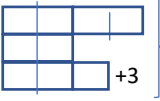
Math Challenge #12

All Transportations

Kinder & First Grade: solve at least 3 problems.
Second & Third Grade: solve at least 7 problems.
Fourth Grade and above: solve at least 12 problems.

Answer

<p>1. </p>	<p>14 [miles]</p>				
<p>2. Who lives closer to the school? By how many yards?</p> <p></p>	<p>Sofia By 20 yards</p>				
<p>3. At the beginning, there are $6+1$ or 7 people on the bus. After 3 stops, there are $7 + 2 + 2 + 2 = 13$ people on the bus.</p>					
<p>4. The distance from his house to his destination is $4 + 5 + 7 = 16$ miles.</p>	<p>16 [miles]</p>				
<p>5.  If there are 20 people, they will need $20 \div 5$ or 4 cars. The additional 3 people will need an extra car. So, the total number of cars needed is $4 + 1 = 5$ cars.</p>	<p>5 [cars]</p>				
<p>6. When half-full, each car has $18 \div 2 = 9$ passengers. If there are 3 cars that are half-full, there will be $3 \times 9 = 27$ passengers on the train.</p>					
<p>7. $36 - 9 + 1$ (himself) = 28</p>	<p>28 [passengers]</p>				
<p>8. Draw a model</p> <p>Minibus <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td></tr></table></p> <p>Minivan <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td></tr></table></p> <p>$42 \div 3 = 14$ people in 1 unit. Minivan holds $14 \times 2 = 28$ people</p>					<p>28 [people]</p>
<p>9. Twice faster, means she'll reach Leavenworth, when Peter would be halfway or 40 miles away</p>	<p>40 [miles]</p>				
<p>10. Second car gains $60 - 50 = 10$ miles every hour For them to be 30 miles apart, it will take $30 \div 10 = 3$ hours</p>					

<p>11. Draw a model</p> <p>Red </p> <p>White </p> <p>Blue  +3</p> <p>$9 \square + 3 = 21 \rightarrow 9 \square = 18$, therefore, $1 \square = 2$ Red cars: $4 \times 2 = 8$, White cars: $2 \times 2 = 4$, Blue cars: $3 \times 2 + 3 = 9$</p>	<p>Red: 8 White: 4 Blue: 9</p>
<p>12. There are 29 rows in total, 1 is special with 4 seats. $28 \times 6 + 1 \times 4 = 172$ seats</p>	<p>172 [seats]</p>
<p>13. For the first two hours, he drove $45 \times 2 = 90$ miles; after that he drove $55 \times 3 = 165$ miles. $90 + 165 = 255$ miles</p>	<p>255 [miles]</p>
<p>14. Sarah is $60 - 45 = 15$ mph faster than Ashrita, which means she'll catch Ashrita on her next loop. Thus, the distance between the racers is 10 miles. $\frac{10 \text{ miles}}{15 \text{ mph}} = \frac{2}{3}$ hour = 40 minutes</p>	<p>40 [minutes]</p>
<p>15. Total trip both ways: $343 \times 2 = 686$ miles. Gas needed for the trip: $686 \div 28 = 24.5$ gallons. Cost of the gas: $24.5 \text{ gallons} \times \\$3.50 = \\$85.75$</p>	<p>\$85.75</p>
<p>16. Pranav was flying some part of a trip 100mph, the other part 80 mph If he would have flown 80mph the whole trip, it would be $80 \times 2 \frac{3}{4} \text{h} = 220$ miles Which is $245 - 220 = 25$ miles less. Which means slowing down by 20 miles per hour costed him 45 miles. $\frac{45}{20} = \frac{9}{4} = 1 \frac{1}{4} \text{h} = 1 \text{h } 15 \text{ min}$</p>	<p>1 hour and 15 minutes</p>
<p>17. The whole travel took $2 + 3 = 5$ hours 10mph higher speed for 3 hours adds extra 30 miles $(230 - 30) \div 5 = 40$ mph was the rate before lunch Check whether it works: $2 \times 40 + 3 \times 50 = 80 + 150 = 230$ miles</p>	<p>40 mph</p>
<p>18. $8 \times 3 = 24$ miles is the initial distance between Ron and his sister $12 - 8 = 4$ miles Ron is gaining every hour $24 \div 4 = 6$ hours In 6 hours Ron will catch up his sister</p>	<p>6 [hours]</p>

Solution is available on April 2, 2020 at www.mathinaction.org