

# Comparing Unit Rates

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 24

## Q Quick Review

A **rate** compares two quantities with different units, like miles and hours. A **unit rate** tells you the amount for *exactly one* of the second quantity — such as miles per *one* hour or dollars per *one* pound. To find a unit rate, **divide the first quantity by the second**. For 120 miles in 4 hours, the unit rate is  $120 \div 4 = 30$  miles per hour. Unit rates make it easy to **compare** two deals: just find each unit rate, then see which is larger or smaller depending on what you want.

◇ **Example:** A car travels 120 miles in 4 hours. Find the unit rate.

⇒ A unit rate answers “how much for just one?” — here, how many miles in one hour. To get that, divide the total miles by the total hours:  $120 \div 4 = 30$ . So the car covers 30 miles in each single hour. We write the unit rate as 30 miles per hour.

**Answer:** 30 miles per hour

## PRACTICE

Find each unit rate.

- |                              |       |                                 |       |
|------------------------------|-------|---------------------------------|-------|
| 1. 150 miles in 5 hours      | _____ | 11. 90 push-ups in 9 sets       | _____ |
| 2. 84 words in 7 minutes     | _____ | 12. \$108 for 12 tickets        | _____ |
| 3. \$96 for 8 shirts         | _____ | 13. 156 photos in 12 albums     | _____ |
| 4. 200 pages in 8 days       | _____ | 14. 210 km in 3 hours           | _____ |
| 5. 144 cookies on 6 trays    | _____ | 15. \$3.50 for 5 apples         | _____ |
| 6. \$45 for 5 hours of work  | _____ | 16. 96 ounces in 8 bottles      | _____ |
| 7. 72 students in 3 buses    | _____ | 17. 275 seats in 5 rows         | _____ |
| 8. 180 beats in 4 minutes    | _____ | 18. \$6.30 for 7 markers        | _____ |
| 9. \$56 for 7 pounds of nuts | _____ | 19. 364 miles in 7 hours        | _____ |
| 10. 132 miles on 6 gallons   | _____ | 20. \$15 for 4 pounds of grapes | _____ |

## ◆ Word Problems

21. Store A sells 6 granola bars for \$9. Store B sells 4 granola bars for \$5. Which store has the lower unit price? \_\_\_\_\_
22. Maya runs 12 miles in 2 hours. Liam runs 15 miles in 3 hours. Who runs at the faster unit rate? \_\_\_\_\_
23. A 10-ounce juice box costs \$2.00 and a 16-ounce juice box costs \$2.88. Which box costs less per ounce? \_\_\_\_\_
24. Printer X prints 90 pages in 5 minutes. Printer Y prints 96 pages in 6 minutes. Which printer is faster per minute? \_\_\_\_\_



## Answer Keys

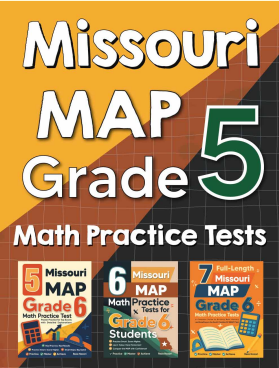
- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. 30 mph</li> <li>2. 12 words/min</li> <li>3. \$12 per shirt</li> <li>4. 25 pages/day</li> <li>5. 24 per tray</li> <li>6. \$9 per hour</li> <li>7. 24 per bus</li> <li>8. 45 beats/min</li> <li>9. \$8 per pound</li> <li>10. 22 mpg</li> <li>11. 10 per set</li> <li>12. \$9 per ticket</li> </ol> | <ol style="list-style-type: none"> <li>13. 13 per album</li> <li>14. 70 km/h</li> <li>15. \$0.70 per apple</li> <li>16. 12 oz/bottle</li> <li>17. 55 per row</li> <li>18. \$0.90 per marker</li> <li>19. 52 mph</li> <li>20. \$3.75 per pound</li> <li>21. Store B (\$1.25 vs. \$1.50)</li> <li>22. Maya (6 mph vs. 5 mph)</li> <li>23. The 16-oz box (\$0.18 vs. \$0.20)</li> <li>24. Printer X (18 vs. 16 pages/min)</li> </ol> |
|---|---|

### Step-by-Step Explanations

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Divide miles by hours: <math>150 \div 5 = 30</math> miles per hour.</li> <li>2. Divide words by minutes: <math>84 \div 7 = 12</math> words per minute.</li> <li>3. Divide cost by shirts: <math>96 \div 8 = 12</math> dollars per shirt.</li> <li>4. Divide pages by days: <math>200 \div 8 = 25</math> pages per day.</li> <li>5. Divide cookies by trays: <math>144 \div 6 = 24</math> cookies per tray.</li> <li>6. Divide pay by hours: <math>45 \div 5 = 9</math> dollars per hour.</li> <li>7. Divide students by buses: <math>72 \div 3 = 24</math> students per bus.</li> <li>8. Divide beats by minutes: <math>180 \div 4 = 45</math> beats per minute.</li> <li>9. Divide cost by pounds: <math>56 \div 7 = 8</math> dollars per pound.</li> <li>10. Divide miles by gallons: <math>132 \div 6 = 22</math> miles per gallon.</li> <li>11. Divide push-ups by sets: <math>90 \div 9 = 10</math> per set.</li> <li>12. Divide cost by tickets: <math>108 \div 12 = 9</math> dollars per ticket.</li> <li>13. Divide photos by albums: <math>156 \div 12 = 13</math> photos per album.</li> </ol> | <ol style="list-style-type: none"> <li>14. Divide km by hours: <math>210 \div 3 = 70</math> km per hour.</li> <li>15. Divide cost by apples: <math>3.50 \div 5 = 0.70</math> dollars per apple.</li> <li>16. Divide ounces by bottles: <math>96 \div 8 = 12</math> ounces per bottle.</li> <li>17. Divide seats by rows: <math>275 \div 5 = 55</math> seats per row.</li> <li>18. Divide cost by markers: <math>6.30 \div 7 = 0.90</math> dollars per marker.</li> <li>19. Divide miles by hours: <math>364 \div 7 = 52</math> miles per hour.</li> <li>20. Divide cost by pounds: <math>15 \div 4 = 3.75</math> dollars per pound.</li> <li>21. Store A: <math>9 \div 6 = \\$1.50</math> each. Store B: <math>5 \div 4 = \\$1.25</math> each. Store B is cheaper per bar.</li> <li>22. Maya: <math>12 \div 2 = 6</math> mph. Liam: <math>15 \div 3 = 5</math> mph. Maya's unit rate is faster.</li> <li>23. 10-oz: <math>2.00 \div 10 = \\$0.20</math> per ounce. 16-oz: <math>2.88 \div 16 = \\$0.18</math> per ounce. The larger box is the better deal.</li> <li>24. Printer X: <math>90 \div 5 = 18</math> pages per minute. Printer Y: <math>96 \div 6 = 16</math> pages per minute. Printer X is faster.</li> </ol> |
|--|--|



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