

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.

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|------------------------------|-------|---------------------------------|-------|
| 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

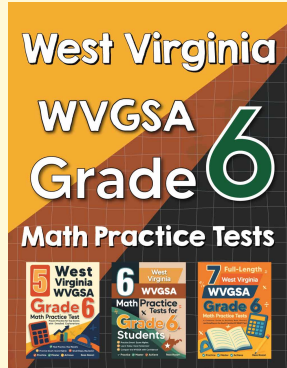
- | | |
|---|---|
| <ol style="list-style-type: none"> 1. 30 mph 2. 12 words/min 3. \$12 per shirt 4. 25 pages/day 5. 24 per tray 6. \$9 per hour 7. 24 per bus 8. 45 beats/min 9. \$8 per pound 10. 22 mpg 11. 10 per set 12. \$9 per ticket | <ol style="list-style-type: none"> 13. 13 per album 14. 70 km/h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

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