Comparing Unit Rates

Name: _____	Date: _____	Score: _____ / 24

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

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
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)

Step-by-Step Explanations

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.
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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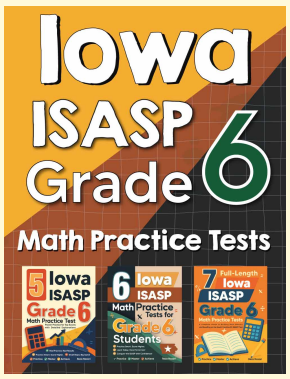

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