

Comparing and Ordering Decimals

Name: _____ Date: _____ Score: _____ / 24

Q Quick Review

To compare decimals, line up the decimal points and compare digit by digit from **left to right**. Start with the whole-number part, then the tenths, then the hundredths, and so on — the first place where the digits differ decides which number is larger. It helps to **add zeros** so the decimals have the same number of places: 0.5 is the same as 0.50. Use $<$, $>$, or $=$ to record the comparison. To **order** a list, compare them in pairs and arrange from least to greatest (or greatest to least).

◇ **Example:** Compare 0.5 and 0.45 using $<$, $>$, or $=$.

⇒ Give both decimals the same number of places by writing 0.5 as 0.50. Now compare from the left. The tenths digits are 5 and 4 — and 5 is greater than 4, so we already have our answer; we do not even need the hundredths. Therefore $0.50 > 0.45$, which means $0.5 > 0.45$.

Answer: $0.5 > 0.45$

PRACTICE

Compare with $<$, $>$, or $=$. For ordering items, list from least to greatest.

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|--------------------------|-------|----------------------------|-------|
| 1. $0.5 \square 0.45$ | _____ | 11. $0.6 \square 0.59$ | _____ |
| 2. $0.7 \square 0.70$ | _____ | 12. $3.14 \square 3.141$ | _____ |
| 3. $0.3 \square 0.30$ | _____ | 13. $0.25 \square 0.250$ | _____ |
| 4. $0.62 \square 0.6$ | _____ | 14. $0.4 \square 0.04$ | _____ |
| 5. $0.8 \square 0.85$ | _____ | 15. $5.6 \square 5.60$ | _____ |
| 6. $0.19 \square 0.2$ | _____ | 16. $0.78 \square 0.8$ | _____ |
| 7. $1.4 \square 1.40$ | _____ | 17. Order: 0.3, 0.13, 0.31 | _____ |
| 8. $0.09 \square 0.1$ | _____ | 18. Order: 0.6, 0.06, 0.66 | _____ |
| 9. $2.5 \square 2.05$ | _____ | 19. Order: 1.2, 1.02, 1.22 | _____ |
| 10. $0.333 \square 0.33$ | _____ | 20. Order: 0.5, 0.45, 0.54 | _____ |

◆ Word Problems

21. In a race, Maya finished in 9.8 seconds and Zoe finished in 9.75 seconds. Who was faster? _____
22. Three ribbons measure 0.6 m, 0.56 m, and 0.65 m. List the lengths from shortest to longest. _____
23. A store has two bags of nuts weighing 1.25 lb and 1.3 lb. Which bag is heavier? _____
24. Three students measured a pencil as 0.18 m, 0.108 m, and 0.18 m. Are any two measurements equal, and which is smallest? _____



Answer Keys

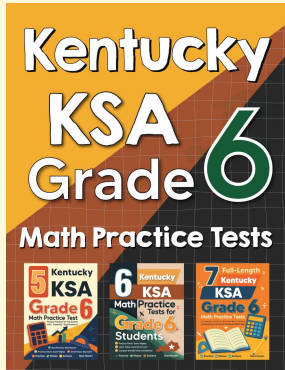
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| <p>1. <input type="radio"/> ></p> <p>2. <input type="radio"/> =</p> <p>3. <input type="radio"/> =</p> <p>4. <input type="radio"/> ></p> <p>5. <input type="radio"/> <</p> <p>6. <input type="radio"/> <</p> <p>7. <input type="radio"/> =</p> <p>8. <input type="radio"/> <</p> <p>9. <input type="radio"/> ></p> <p>10. <input type="radio"/> ></p> <p>11. <input type="radio"/> ></p> <p>12. <input type="radio"/> <</p> | <p>13. <input type="radio"/> =</p> <p>14. <input type="radio"/> ></p> <p>15. <input type="radio"/> =</p> <p>16. <input type="radio"/> <</p> <p>17. <input type="text" value="0.13, 0.3, 0.31"/></p> <p>18. <input type="text" value="0.06, 0.6, 0.66"/></p> <p>19. <input type="text" value="1.02, 1.2, 1.22"/></p> <p>20. <input type="text" value="0.45, 0.5, 0.54"/></p> <p>21. <input type="text" value="Zoe (9.75 < 9.8)"/></p> <p>22. <input type="text" value="0.56 m, 0.6 m, 0.65 m"/></p> <p>23. <input type="text" value="The 1.3 lb bag"/></p> <p>24. <input type="text" value="The two 0.18 m are equal; 0.108 m is smallest"/></p> |
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Step-by-Step Explanations

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| <p>1. As 0.50 vs. 0.45, the tenths $5 > 4$, so $0.5 > 0.45$.</p> <p>2. 0.7 and 0.70 name the same amount, so they are equal.</p> <p>3. Adding a zero does not change the value: $0.3 = 0.30$.</p> <p>4. As 0.62 vs. 0.60, the hundredths $2 > 0$, so $0.62 > 0.6$.</p> <p>5. As 0.80 vs. 0.85, the hundredths $0 < 5$, so $0.8 < 0.85$.</p> <p>6. As 0.19 vs. 0.20, the tenths $1 < 2$, so $0.19 < 0.2$.</p> <p>7. 1.4 and 1.40 are the same number, so they are equal.</p> <p>8. As 0.09 vs. 0.10, the tenths $0 < 1$, so $0.09 < 0.1$.</p> <p>9. The tenths digits are 5 and 0, and $5 > 0$, so $2.5 > 2.05$.</p> <p>10. As 0.333 vs. 0.330, the thousandths $3 > 0$, so $0.333 > 0.33$.</p> <p>11. As 0.60 vs. 0.59, the tenths $6 > 5$, so $0.6 > 0.59$.</p> <p>12. As 3.140 vs. 3.141, the thousandths $0 < 1$, so $3.14 < 3.141$.</p> <p>13. The trailing zero adds nothing: $0.25 = 0.250$.</p> <p>14. The tenths digits are 4 and 0, and $4 > 0$, so $0.4 > 0.04$.</p> | <p>15. 5.6 and 5.60 name the same value, so they are equal.</p> <p>16. As 0.78 vs. 0.80, the tenths $7 < 8$, so $0.78 < 0.8$.</p> <p>17. Compare tenths: 0.13 has 1, 0.3 and 0.31 have 3; then $0.30 < 0.31$. Order: 0.13, 0.3, 0.31.</p> <p>18. Tenths: 0.06 has 0, then $0.60 < 0.66$. Order: 0.06, 0.6, 0.66.</p> <p>19. Tenths: 1.02 has 0, then $1.20 < 1.22$. Order: 1.02, 1.2, 1.22.</p> <p>20. As hundredths: $0.45 < 0.50 < 0.54$. Order: 0.45, 0.5, 0.54.</p> <p>21. As 9.75 vs. 9.80, compare hundredths: $5 < 0$? No — compare tenths first: $7 < 8$, so $9.75 < 9.8$. Zoe's smaller time means she was faster.</p> <p>22. Write all as hundredths: $0.56 < 0.60 < 0.65$, so the order is 0.56 m, 0.6 m, 0.65 m.</p> <p>23. As 1.25 vs. 1.30, compare tenths: $2 < 3$, so $1.25 < 1.3$. The 1.3 lb bag is heavier.</p> <p>24. $0.18 = 0.180$, so the two 0.18 measurements match. Comparing 0.180 and 0.108, the hundredths $8 > 0$, so 0.108 is the smallest.</p> |
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