

Comparing Functions

Name: _____

Date: _____

Score: _____ / 31

Q Quick Review

Functions may be shown by equations, graphs, tables, or words. To compare them, put the important feature in the same form first: rate of change, starting value, maximum or minimum, zeros, or a value at a chosen input. From a table, use $\frac{\Delta y}{\Delta x}$. From a graph, read the slope or key point from the picture.

PRACTICE

Read each situation and compare the requested feature.

1. A copy shop charges $C(n) = 15 + 0.08n$ dollars for n flyers. The school office charges \$23 for 100 flyers, \$31 for 200, and \$39 for 300. Are the two pricing rules the same?

2. Two fundraiser teams report their totals. Team A has \$180, \$235, \$290 after days 0, 1, 2. Team B is modeled by $B(d) = 150 + 60d$. Which team has raised more by day 4?

3. Blue Bikes charges \$6 to unlock a bike and \$3 per hour. Green Bikes lists \$11, \$14, \$17 for 1, 2, 3 hours. Which company has the lower starting fee?

4. A coffee subscription costs $A(b) = 14 + 3b$ dollars for b bags of coffee. A local roaster charges \$20, \$22.50, \$25 for 0, 1, 2 bags. Which subscription has the lower cost per bag?

5. A streaming service charges $18m$ dollars for m months. Another service costs \$27, \$42, \$57 after months 1, 2, 3. Which service is cheaper after 6 months?

6. Pool A has $V_A(t) = 5000 - 350t$ gallons after t hours. Pool B has 4800, 4000, 3200 gallons after 0, 2, 4 hours. Which pool is draining faster?

7. One test-prep app predicts a score of $120 + 15w$ after w weeks. Another app reports scores 90, 112, 134 after weeks 0, 1, 2. Which app is improving faster?

8. Section A of a concert hall earns $R_A(n) = 28n$ dollars for n tickets. Section B reports \$310, \$560, \$810 for 10, 20, 30 tickets. Which section earns more from 40 tickets?

9. Plan A for phone data costs $28 + 0.05t$ dollars for t texts. Plan B costs \$20, \$29, \$38 for 0, 100, 200 texts. Which plan is cheaper at 300 texts?

10. Driver A earns $18 + 5d$ dollars for d deliveries. Driver B earns \$34, \$48, \$62 for 2, 4, 6 deliveries. Who earns more for 8 deliveries?



Scan Me

11. A tank-fill station has $A(t) = 15 + 4t$ gallons after t minutes. Station B has 10, 24, 38 gallons after 0, 2, 4 minutes. Which station reaches 60 gallons first?

12. Booth A at a bake sale has profits \$35, \$47, \$59 for 0, 1, 2 batches sold. Booth B has profit $P(b) = 28 + 14b$. Which booth makes more per batch?

13. Data Plan A costs $45 + 8g$ dollars for g GB of data. Plan B costs \$60, \$66, \$72 for 0, 1, 2 GB. Which plan is cheaper for 5 GB?

14. Landscaper A charges $75 + 22y$ dollars for y yards. Landscaper B charges \$100, \$118, \$136 for 1, 2, 3 yards. Which landscaper has the lower rate per yard?

15. A museum pass costs \$90 for the year plus \$5 per visit. Without the pass, each visit costs \$17. What is the first whole number of visits where the pass is cheaper?

16. Runner A has distances 0, 1.2, 2.4 miles after 0, 10, 20 minutes. Runner B's distance is $B(m) = 0.11m$. Who has gone farther after 30 minutes?

17. Line A at a warehouse packs $40 + 18h$ boxes after h hours. Line B packs 25, 46, 67 boxes after 0, 1, 2 hours. Which line packs boxes faster?

18. Account A has $250 + 18w$ dollars after w weeks. Account B has \$160, \$280, \$400 after weeks 0, 5, 10. After how many weeks will the accounts have the same amount?

19. Cafeteria account A starts with \$35 and spends \$4.50 per day. Account B has \$50, \$39, \$28 after days 0, 2, 4. Which account is dropping faster?

20. A theater compares two ticket plans. Plan A is $A(n) = 12n + 30$. Plan B costs \$42 for 1 ticket, \$54 for 2, and \$66 for 3. Are the plans the same function?



Scan Me

VISUAL PRACTICE

Use the graph, table, chart, or diagram to answer the question.

21. Two delivery teams record packages packed. Team A is graphed; Team B is shown in the table. Which team packs faster?



Answer: _____

22. Two savings accounts are compared. Account A is graphed; Account B is in the table. Which account started with more money?



Answer: _____

23. A biology class compares two seedlings. Plant A is graphed; Plant B is shown in the table. Which plant is growing faster?



Answer: _____



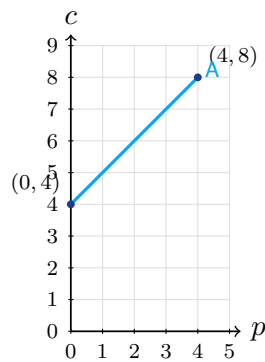
24. Two classes track fundraiser money in hundreds of dollars. Class A is graphed; Class B is shown in the table. Which class has more after 5 weeks?



week	0	2	4
Class B	1	5	9

Answer: _____

25. A student council compares poster-printing costs in tens of dollars. Store A is graphed; Store B is shown in the table. Which store has the lower starting fee?



posters	0	2	4
Store B cost	3	7	11

Answer: _____



26. Two water tanks are filling. Tank A is graphed; Tank B is shown in the table. Which tank reaches 12 gallons first?



min	0	2	4
Tank B	0	5	10

Answer: _____

27. Two taxi companies compare fares in dollars. Cab A is graphed; Cab B is shown in the table. Which cab has the lower cost per mile?



miles	0	2	4
Cab B	6	9	12

Answer: _____



Scan Me

◆ Word Problems

28. A school is comparing two caterers for a banquet. Caterer A charges a \$250 setup fee plus \$18 per guest. Caterer B sent a quote table: 10 guests cost \$410, 20 guests cost \$590, and 30 guests cost \$770. Which caterer has the lower setup fee, and which caterer is cheaper for 50 guests?

Model: _____

Answer: _____

29. A robotics club tests two batteries before a competition. Battery A has $A(t) = 96 - 6t$ percent charge after t hours. Battery B records 100, 91, 82, 73 percent charge after 0, 1, 2, 3 hours. Which battery loses charge faster, and which battery has more charge after 5 hours?

Model: _____

Answer: _____

30. The yearbook team compares two poster printers. Printer A charges a \$40 setup fee plus \$2.50 per poster. Printer B charges \$55 for 10 posters, \$80 for 20 posters, and \$105 for 30 posters. Which printer has the lower setup fee, and which is cheaper for an order of 60 posters?

Model: _____

Answer: _____

31. At a stadium entrance, Gate A has already scanned 80 tickets and scans 22 more tickets each minute. Gate B has scanned 50, 78, 106, and 134 tickets after 0, 1, 2, and 3 minutes. Which gate is scanning faster, and after how many minutes will Gate B catch Gate A?

Model: _____

Answer: _____



Scan Me

Answer Keys

- | | | |
|--|---|--|
| 1. <input type="text" value="yes"/> | 12. <input type="text" value="Booth B"/> | 23. <input type="text" value="Plant B"/> |
| 2. <input type="text" value="Team A"/> | 13. <input type="text" value="Plan A"/> | 24. <input type="text" value="Class B"/> |
| 3. <input type="text" value="Blue Bikes"/> | 14. <input type="text" value="Landscaper B"/> | 25. <input type="text" value="Store B"/> |
| 4. <input type="text" value="local roaster"/> | 15. <input type="text" value="8 visits"/> | 26. <input type="text" value="Tank B"/> |
| 5. <input type="text" value="second service"/> | 16. <input type="text" value="Runner A"/> | 27. <input type="text" value="Cab A"/> |
| 6. <input type="text" value="Pool B"/> | 17. <input type="text" value="Line B"/> | 28. <input type="text" value="B has the lower setup fee; B is cheaper"/> |
| 7. <input type="text" value="second app"/> | 18. <input type="text" value="15 weeks"/> | 29. <input type="text" value="B loses charge faster; A has more after 5 hours"/> |
| 8. <input type="text" value="Section A"/> | 19. <input type="text" value="Account B"/> | 30. <input type="text" value="Printer B; Printer B"/> |
| 9. <input type="text" value="Plan A"/> | 20. <input type="text" value="yes"/> | 31. <input type="text" value="Gate B scans faster; 5 minutes"/> |
| 10. <input type="text" value="Driver B"/> | 21. <input type="text" value="Team B"/> | |
| 11. <input type="text" value="Station B"/> | 22. <input type="text" value="Account B"/> | |

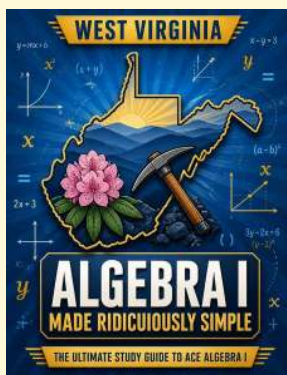
Step-by-Step Tutor Notes

1. The school office increases by \$8 per 100 flyers, or \$0.08 per flyer. Backing up to 0 flyers gives a \$15 setup fee, so the rules match.
2. Team A adds \$55 per day, so day 4 is $180 + 55(4) = 400$. Team B has $150 + 60(4) = 390$, so Team A is ahead.
3. Green Bikes increases by \$3 each hour, so its starting fee is $11 - 3 = 8$. Blue Bikes starts at \$6, which is lower.
4. The first subscription adds \$3 per bag. The local roaster increases by \$2.50 per bag, so it has the lower per-bag cost.
5. The first service costs $18(6) = 108$. The second service has a \$12 setup fee and adds \$15 per month, so $12 + 15(6) = 102$.
6. Pool A loses 350 gallons per hour. Pool B loses 800 gallons in 2 hours, or 400 gallons per hour.
7. The first app increases by 15 points per week. The second app increases by 22 points each week.
8. Section A earns $28(40) = 1120$. Section B has rate \$25 per ticket and starts at \$60, so it earns $60 + 25(40) = 1060$.
9. Plan A costs $28 + 0.05(300) = 43$. Plan B increases by \$9 per 100 texts, so at 300 texts it costs \$47.
10. Driver A earns $18 + 5(8) = 58$. Driver B has rate \$7 per delivery and starting amount \$20, so $20 + 7(8) = 76$.
11. Station A reaches 60 when $15 + 4t = 60$, so $t = 11.25$. Station B adds 7 gallons per minute, so $10 + 7t = 60$ gives about 7.14 minutes.
12. This is a good place to slow down, check the notation, and simplify cleanly. Booth A increases by \$12 per batch. Booth B increases by \$14 per batch. So the answer is Booth B.
13. Plan A costs $45 + 8(5) = 85$. Plan B starts at \$60 and adds \$6 per GB, so $60 + 6(5) = 90$.
14. This is a good place to slow down, check the notation, and simplify cleanly. Landscaper A charges \$22 per yard. Landscaper B increases by \$18 per yard. So the answer is Landscaper B.
15. The pass is cheaper when $90 + 5v < 17v$, so $90 < 12v$. The first whole number above 7.5 is 8.
16. Runner A runs 0.12 mile per minute, so 30 minutes is 3.6 miles. Runner B runs $0.11(30) = 3.3$ miles.
17. This is a good place to slow down, check the notation, and simplify cleanly. Line A packs 18 boxes per hour. Line B increases by 21 boxes per hour. So the answer is Line B.
18. Account B grows by \$24 per week. Solve $250 + 18w = 160 + 24w$ to get $90 = 6w$, so $w = 15$.
19. Account A drops \$4.50 per day. Account B drops \$11 over 2 days, or \$5.50 per day.
20. Plan B has rate 12 and starts at \$30, matching $A(n) = 12n + 30$. They are the same function.
21. Team A has rate 1 package per hour. Team B has rate 3 packages per hour, so Team B is faster.
22. Use the clue in the question first, then let the arithmetic finish the job. Account A starts at 1, while Account B starts at 4. So the answer is Account B.
23. Plant A grows from 2 to 6 in 4 weeks, or 1 inch per week. Plant B grows 4 inches in 2 weeks, or 2 inches per week.
24. Class A starts at 3 and adds 1 hundred dollars per week, so week 5 is 8. Class B starts at 1 and adds 2 per week, so week 5 is 11.
25. Store A starts at 4 tens of dollars. Store B starts at 3 tens of dollars, so Store B has the lower starting fee.
26. Tank A fills at 2 gallons per minute and reaches 12 at 5 minutes. Tank B fills at 2.5 gallons per minute and reaches 12 at 4.8 minutes.
27. Cab A increases by \$5 over 5 miles, or \$1 per mile. Cab B increases by \$3 over 2 miles, or \$1.50 per mile.
28. Caterer B increases by \$180 for each 10 guests, so its rate is \$18 per guest. At 10 guests, the guest charge is \$180, leaving a \$230 setup fee. For 50 guests, A costs $\$250 + \$18(50) = \$1150$, while B costs $\$230 + \$18(50) = \$1130$.
29. Battery A loses 6 percent per hour. Battery B loses 9 percent per hour, so B drains faster. After 5 hours, A has $96 - 6(5) = 66\%$ and B has $100 - 9(5) = 55\%$, so A has more charge.
30. Printer B increases by \$25 for 10 posters, so the rate is \$2.50 per poster. At 10 posters, \$25 is the poster charge, leaving a \$30 setup fee. For 60 posters, A costs $\$40 + \$2.50(60) = \$190$, while B costs $\$30 + \$2.50(60) = \$180$.
31. Gate B increases by 28 tickets each minute, while Gate A increases by 22 tickets each minute. To catch up, solve $50 + 28m = 80 + 22m$. Then $6m = 30$, so $m = 5$ minutes.



Scan Me

Want a Full Algebra 1 Textbook? Try Our West Virginia WVGSA Made Simple Book!



West Virginia WVGSA Algebra I Made Ridiculously Simple

The friendly, step-by-step Algebra 1 textbook
Plain-English explanations, guided practice, and review support.



Scan Me

Full Lessons Inside

Concepts
Practice
Mastery

Important: All our test books contain **unique, completely different tests** from each other! Each book offers fresh practice questions—no repeats!

5 Practice Tests

- ✓ 5 complete practice tests with detailed explanations
- ✓ Perfect foundation for WVGSA test preparation
- ✓ Builds confidence and test-taking skills
- ✓ High-quality questions aligned with state standards

Start your practice journey!

6 Practice Tests

- ✓ 6 complete practice tests with detailed explanations
- ✓ **Unique tests**—different from the 5 tests book
- ✓ Perfect for more practice after mastering 5 tests
- ✓ Builds even more confidence and test-taking skills
- ✓ Same high-quality questions aligned with standards

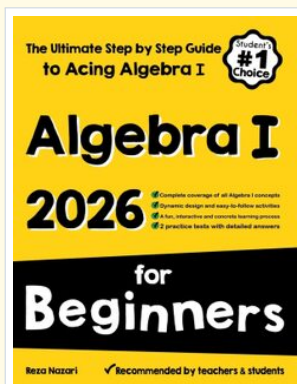
Take your practice to the next level!

7 Practice Tests

- ✓ 7 complete practice tests for maximum preparation
- ✓ **Unique tests**—different from 5 and 6 tests books
- ✓ The most comprehensive practice for Algebra 1
- ✓ Ideal for students aiming for top scores
- ✓ Extensive practice builds mastery and confidence

Go all the way with comprehensive practice!

☐ STUDENT FAVORITE • Master Algebra I From the Ground Up ☐



- ✓ 100% Guaranteed
- ✓ Lifetime Support
- ✓ Trusted by Teachers

Start Your Algebra Journey Today! →

Algebra I for Beginners

Written by a top math teacher & aligned with national and state Algebra I courses. From linear equations to graphing quadratics — explained the easy way.

- ✓ **Complete coverage** of every Algebra I concept — perfect companion to these worksheets
- ✓ **Step-by-step explanations** with worked examples on every topic
- ✓ **QR codes in every chapter** for free video lessons & bonus practice
- ✓ **2 full-length practice tests** with detailed answer keys

★ STUDENT'S #1 CHOICE ★

Teacher-recommended • 12,000+ Happy Students

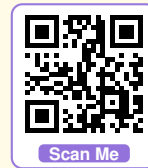
↓ PDF EDITION



Scan Me

Instant download • any device

☐ PAPERBACK



Scan Me

Paperback on Amazon

Hold it in your hands

Pair these free worksheets with *Algebra I for Beginners* and you have a complete self-paced course — concept lessons, daily practice, and full exam-style reviews, all in one path. →

EffortlessMath.com/product/algebra-i-for-beginners