

Health Related Math Test Study Guide

Pensacola State College

The HRMT is offered in two versions and the version you take depends on your particular program of study. One version is 35 questions that emphasizes competency with basic math skills and the other version is 25 questions that emphasizes algebra skills. Each version is a 30-minute timed test containing word problems and calculators are not allowed. This study guide provides practice for both versions of the HRMT and before taking the test you may consider the following:

- Visit a PSC Testing Center or call 484-2145 for more information.
- Visit a PSC Math Lab or call 484-2003 for additional help.
- Access the Virtual Math Tutoring online through your PSC Canvas account.

Health Related Math Test

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Health Related Math Test

Part I: Practice with basic math skills without using a calculator. Time limit is 30 minutes.

1. Compute the sum: $536 + 375$.
2. Compute the difference: $71 - 48$.
3. Suppose you ride an elevator in a high-rise building that begins on the thirteenth floor. The elevator goes up 3 floors, then down 7 floors and finally up 2 floors where upon you get out of the elevator. On what floor do you exit?
4. Find the product: 19×23 .
5. Find the quotient: $3.4 \overline{)29.24}$.
6. In the west wing of an elementary school there are 4 classrooms and each classroom has 30 student desks. The east wing has 6 classrooms and each classroom has 25 student desks. How many total student desks are there in the east and west wings of the school?
7. Simplify the proper fraction completely: $\frac{35}{42}$.
8. Write the mixed-number $4 \frac{2}{3}$ as an improper fraction.
9. Write the improper-fraction $\frac{26}{5}$ as a mixed-number.
10. Give the sum of the following rational numbers: $\frac{1}{3} + 3 \frac{1}{4}$.
11. Compute the difference between a whole number and a mixed-number: $6 - 2 \frac{3}{7}$.
12. A lab technician is directed to create a new acid concentration using three different types of ingredients. Her task is to combine $\frac{2}{3}$ cup of one ingredient with $1 \frac{1}{2}$ cups of a second ingredient with $\frac{1}{4}$ cup of a third type. How many total cups make up the final mixture?

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Part I: Practice with basic math skills.

13. Give the product of a fraction and a mixed number: $\frac{4}{9} \times 2\frac{4}{7}$.
14. Give the quotient of a whole number and a mixed-number: $5 \div 2\frac{1}{2}$.
15. Suppose three men, operating three identical riding lawn mowers, mow a natural grass athletic field. The field has an area of four and one-half acres. If they mow equal-sized areas of the field, how many acres of grass will each man mow?
16. A six-pack of a popular soft-drink is sold in individual $\frac{5}{2}$ pint bottles. How many total pints are contained in two six-packs of the soft drink?
17. Express the fraction $\frac{3}{8}$ as a decimal to the nearest thousandth place.
18. Express the decimal number 3.14 as a fraction in lowest terms.
19. Give the decimal representation for a number whose word-name is given as: eighteen and eighteen thousandths.
20. Compute the sum of the two decimal numbers: $62.17 + 48.902$.
21. Subtract 5.2 from 7.025.
22. Tawana purchased school supplies for the upcoming semester at the college bookstore. She bought 5 pencils at 27¢ each, 2 packs of graph paper at \$1.13 each and 3 jumbo pencil erasers for \$0.99 each. Not including sales tax, much did her supplies cost?
23. Compute the quotient of two decimal numbers: $10.8 \div 1.5$.
24. Give the product of two decimal numbers: 7.23×1.6 .

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Part I: Practice with basic math skills.

25. Express the decimal number 0.36 as a proper fraction.
26. Write the decimal number 1.075 as a percent.
27. Write 17% as a decimal number.
28. Write $1\frac{3}{4}\%$ as a proper fraction.
29. An automobile mechanic estimates that the brake pads on a pick-up truck still have 6,000 miles of wear left on them. This is about 12% of the estimated safe-life use of the truck's brake pads. What is the estimated safe-life use of the brake pads?
30. What is 17% of 401?
31. If 8 is increased to 10, what is the percent increase?
32. The manager of the hospital gift shop expects to receive $16\frac{2}{3}\%$ of the total monthly sales as profit. How much profit does he get if the total monthly sales is \$4,000?
33. If you decrease 30 by 15% of itself, what is the result?
34. In one week, a dental hygienist found 7 cases of gingivitis (gum disease) in 42 dental patients. What is the ratio of the number of patients that were gingivitis free (no gum disease detected) to the total number of patients treated that week? Also, give this ratio as a percent.
35. The label on a bottle of isopropyl alcohol indicates it is 92% alcohol and 8% inert ingredients. How many milliliters of alcohol are in a 500 ml bottle of isopropyl alcohol?

End of Part I: Practice with Basic Math Skills

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Answers for Part I

1. 911
2. 23
3. 11th-floor
4. 437
5. 8.6
6. 270 desks
7. $\frac{5}{6}$
8. $\frac{14}{3}$
9. $5\frac{1}{5}$
10. $3\frac{7}{12}$
11. $3\frac{4}{7}$
12. $2\frac{5}{12}$ cups
13. $\frac{8}{7}$ or $1\frac{1}{7}$
14. 2
15. $1\frac{1}{2}$ acres
16. 30 pints
17. 0.375
18. $\frac{157}{50}$
19. 18.018
20. 111.072
21. 1.825
22. \$6.58
23. 7.2
24. 11.568
25. $\frac{9}{25}$
26. 107.5%
27. 0.17
28. $\frac{7}{400}$
29. 50,000 miles
30. 68.17
31. 25% increase
32. \$666.67
33. 25.5
34. $\frac{5}{6} = 83\frac{1}{3}\%$
35. 460 ml

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Part II: Practice with algebra skills without using a calculator. Time limit is 30 minutes.

- Identify each of the following metric measurements as a volume, mass or length.
(a) 2.5 cm (b) 347 mg (c) 61 ml (d) 87 kg
- A bookcase is measured to be 1.7 meters tall. How tall is the bookcase in centimeters?
- A lab tech needs to find the total weight of three boxes: first box is 1.5 million milligrams, and the second box is 3.2 kilograms, and the third box is 8.8 thousand grams. What is the total weight of the three boxes in kilograms?
- Convert $2\frac{1}{3}$ feet to inches.
- A nurse is directed to administer 2200 milliliters of liquid medicine to a patient. However, the supply cabinet only stocks 1.7 liter bottles of this medicine. She administers the entire contents from one bottle and gets the remaining required amount from a second bottle. How many milliliters will she get from the second bottle in order to administer the required dose?
- The lab tech's break room is 12 feet long and 24 feet wide and needs new carpet. The big-box store sells commercial-grade carpet in 72 ft^2 rolls. How many rolls of Carpet are needed to replace the carpet in their break room?
- The recommended dosage of a certain medicine is 2 mg for every 80 lb of body weight. A nurse calculates 5.5 mg of this medication are required for a 220 lb person. Write and solve a true proportion that confirms the nurse's calculation.
- A young patient is connected to an infusion pump. It is set to deliver 100 ml of medicine (intravenously) in 45 minutes. At this rate, about how long will it take to deliver 75 ml of medicine?
- A saltwater solution is made by dissolving $\frac{2}{3}$ pounds of salt in 5 gallons of water. At this ratio, how many pounds of salt are needed for 15 gallons of water?
- If a 56-gram serving of pasta contains 7 grams of protein, how many grams of protein are in a 454-gram serving of pasta?

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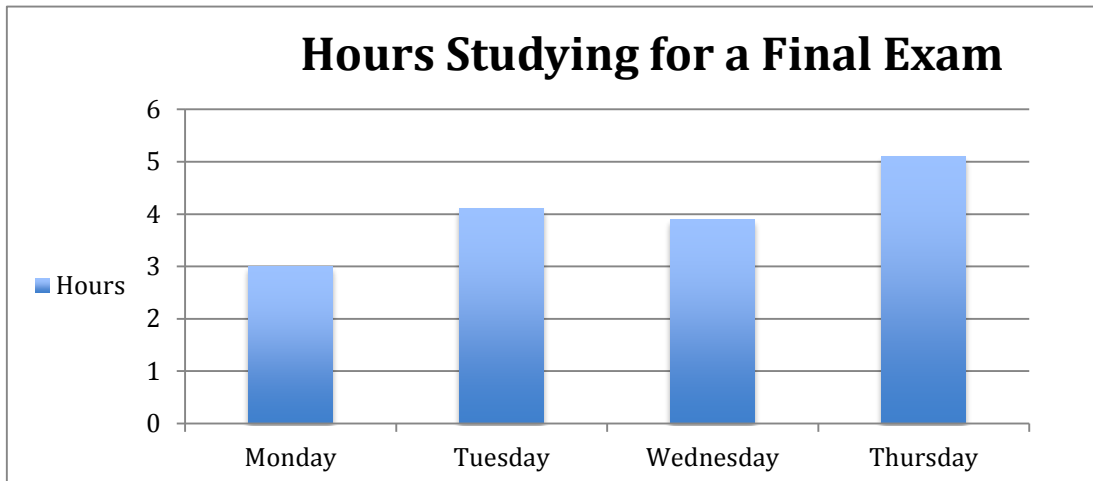
Part II: Practice with algebra skills

11. Compute the sum of two unlike radicals: $\sqrt{7} + \sqrt{63}$.
12. Give the product of two radicals in simplest radical form: $\sqrt{3} \times \sqrt{45}$.
13. Apply the correct order of operations to evaluate the numeric expression: $3^3 + 4^2 - 5^2$.
14. If $m = 3$ and $n = 4$, evaluate the algebraic expression: $2m^2 + mn + 3n$.
15. Solve the linear equation for x : $5x - 3 = 2x + 9$.
16. Evaluate the numeric expression: $0.3(100 - 1.5)$.
17. Solve the linear equation for w : $0.55w - 0.09 = 0.03w + 0.04$.
18. Evaluate each of the following base-ten logarithms.
- | | |
|------------------------|--------------------------|
| (a) $\log_{10}(100)$ | (b) $\log_{10}(0.001)$ |
| (c) $\log_{10}(10000)$ | (d) $\log_{10}(0.01)$ |
| (e) $\log_{10}(10^8)$ | (f) $\log_{10}(10^{-5})$ |
19. The frequency (number of vibrations per second) of a vibrating harp string varies inversely as its length. That is, a longer string vibrates fewer times per second than a shorter string of the same thickness. Suppose a harp string 65 cm long vibrates 4 times per second. What is the frequency for a harp string that is 50 cm long?
20. A student working in a chemistry lab discovered that one mole of CO_2 (carbon dioxide) weighs 44 grams. Use this ratio to determine the number of moles in 396 grams of CO_2 .

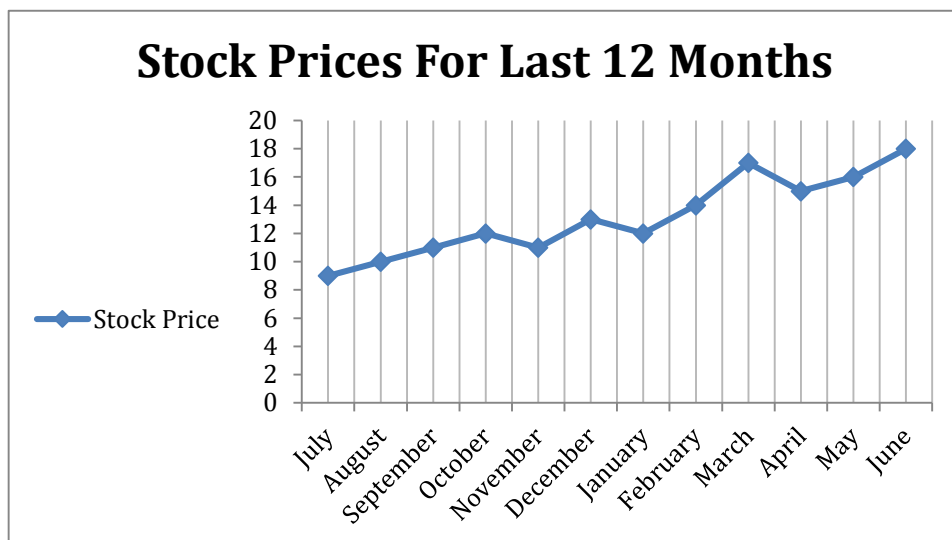
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Part II: Practice with algebra skills.

21. The bar chart below shows Paul's daily study time for a final exam.
- (a) On which day(s) did Paul study more than 5 hours for the final exam?
 - (b) On which day(s) did Paul study at least 4 hours for the final exam?
 - (c) Approximately, how many total hours did Paul study in the four days shown?



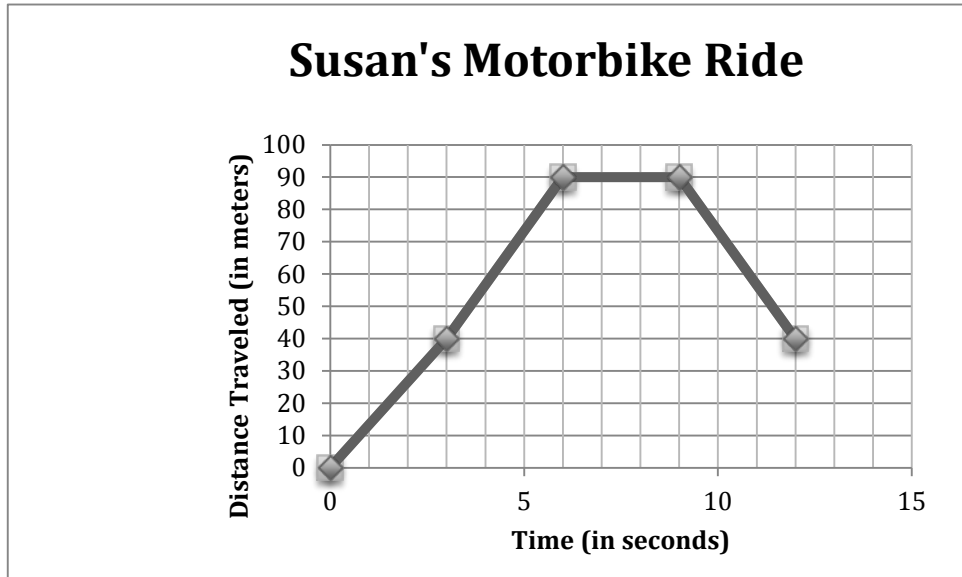
22. An investment firm created a line graph showing the performance of a specific stock from the last 12 months. Answer the following questions by inspecting the line-graph below.
- (a) In which month did the stock price reach a maximum value?
 - (b) What was the minimum stock price in the last 12 months?
 - (c) In which month(s) did the stock price exceed \$16?
 - (d) In the last 12 months, did the price of the stock rise, fall or stay the same?



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Part II: Practice with algebra skills.

The graph below shows the distance Susan traveled on a recent motorbike ride.



23. What is the best description for her rate of travel during the first six seconds?
- (A) Her rate of travel is decreasing because the graph is going downward on this interval of time.
 - (B) Her rate of travel is increasing because the graph is going upward on this interval of time.
 - (C) Her rate of travel remains constant because the graph is horizontal on this interval of time.
24. What is the best description for her rate of travel after time $t = 9$ seconds?
- (A) Her rate of travel is decreasing because the graph is going downward on this interval of time.
 - (B) Her rate of travel is increasing because the graph is going upward on this interval of time.
 - (C) Her rate of travel remains constant because the graph is horizontal on this interval of time.
25. During what interval of time is Susan's rate of travel constant (neither increasing nor decreasing)?
- (A) From time $t = 0$ seconds to time $t = 6$ seconds.
 - (B) From time $t = 6$ seconds to time $t = 9$ seconds.
 - (C) From time $t = 9$ seconds to time $t = 12$ seconds.

End of Part II: Practice with Algebra Skills

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Answers for Part II

1. (a) 2.5 cm is a length (b) 347 mg is a mass (c) 61 ml is a volume (d) 87 kg is a mass
2. 170 cm
3. 13.5 kg
4. 28 inches
5. 500 ml
6. 4 rolls
7. $\frac{2 \text{ mg}}{80 \text{ lb}} = \frac{x \text{ mg}}{220 \text{ lb}} \Rightarrow x = 5.5 \text{ mg}$
8. 33.75 minutes or approximately 34 minutes
9. 2 pounds salt
10. 56.75 grams protein
11. $4\sqrt{7}$
12. $3\sqrt{15}$
13. 18
14. 42
15. $x = 4$
16. 29.55
17. $w = \frac{1}{4}$ or 0.25
18. (a) $\log_{10}(100) = 2$ (b) $\log_{10}(0.001) = -3$
(c) $\log_{10}(10000) = 4$ (d) $\log_{10}(0.01) = -2$
(e) $\log_{10}(10^8) = 8$ (f) $\log_{10}(10^{-5}) = -5$
19. 5.2 vibrations per second
20. 9 moles
21. (a) Thursday
(b) Tuesday and Thursday
(c) approximately 16 hours
22. (a) June (b) \$9
(c) March and June (d) rise
23. choice (B) is correct; rate is increasing
24. choice (A) is correct; rate is decreasing
25. choice (B) is correct; rate is constant