

Algebra II H
Algebraic Models / Word Problems – Review Sheet

1. Give an algebraic expression for: “the product of six and the sum of a number and four, all divided by nine.
2. Give an algebraic expression for: “the sum of the squares of two consecutive odd integers.” Simplify your result.
3. The quotient of five times one more than a number and seven.
4. Ten less than four times a number is 42. Find the number.
5. The sum of two numbers is 26. The larger number is one less than twice the smaller number. Find the smaller number.
6. Pat invests \$18,000 in two funds paying $9\frac{1}{4}\%$ and $10\frac{1}{2}\%$ simple interest. How much did she invest @ $9\frac{1}{4}\%$ if the total yearly interest is 1,827.50?
7. Ed invested \$8,000 in one fund. His wife invested \$10,000 in another. The interest rate paid by Ed’s fund is $2\frac{1}{2}\%$ more than the rate paid by his wife’s fund. Together, after one year their combined investments totaled \$19,055. What rate of interest did Ed’s fund pay?
8. George and Laura live 440 miles apart. They plan to meet at a rest stop that lies exactly half way between them. If George leaves at noon and drives 55 miles per hour and Laura leaves at 1:00pm and drives 70 miles per hour, who arrives at the rest stop first?
9. A kilometer is approximately 0.6 miles. About how many inches are there in two kilometers?
10. A truck driver averaged 60 mph on a 600 mile trip and averaged 40 mph on the return trip. What was the average speed for the entire round trip?
11. Your weekly gross income after a 2.3% cost of living raise is \$593.34. What was your income before the raise?

12. The list price of your purchase is \$492.95. If you are entitled to an 18% discount, and the sales tax is 5.5%, how much do you pay?
13. The annual snowfall decreased by 12% from last year's record of 68.7 inches. What was this year's snowfall?
14. A grocer mixes four pounds of nuts, costing \$9 per pound, with sixteen pounds of nuts costing \$4 per pound. What is the cost per pound of the combined mixture?
15. How many ounces of pure antifreeze must be added to 100 ounces of water to obtain a 60% solution (i.e., one that contains 60% antifreeze?)
16. A company has fixed costs of \$10,000 per month and variable costs of \$9.75 per unit manufactured. If the company incurred \$96,190 in costs during January, how many units did it manufacture that month?
17. Sally invested \$10,000 over a ten year period. She put the initial investment in a fund that grew at 7.5% per year. After 4 years, she moved the entire amount to another fund that earned 8.25% per year. How much was her investment worth at the end of the ten year period?
18. Which investment is better over a 15 year period: (a) one that pays 5.75% interest compounded annually or (b) one that pays 5.5% interest compounded quarterly? Justify your answer.
19. Best Buy sells two types of Ipods. The profit margin for the Basic model is 28%, while the margin for the Deluxe model is 36%. During September, the store made a profit of \$53,400 on total sales of \$165,000. How many of each unit did it sell?
20. You are offered a choice of two annual compensation packages: (i) a base pay of \$25,000 plus a commission of 4.5% of gross sales or (ii) a base pay of \$35,000 plus a commission of 3% of gross sales. If you expect to sell \$700,000 during the year, which compensation package should you choose? Justify your answer.