

Algebra 1 · Interpreting Expressions and Real Numbers · Worksheet

Common Core A-SSE.A.1a, A-SSE.A.1b, N-RN.B.3 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

These problems practice naming terms, factors and coefficients, interpreting expressions in context including $P(1+r)^n$, and deciding when sums and products of rational and irrational numbers are rational (A-SSE.A.1a, A-SSE.A.1b and N-RN.B.3). They progress from identifying parts to multi-step word problems.

Algebra 1 Common Core: A-SSE.A.1a · A-SSE.A.1b · N-RN.B.3

Problem 1: Terms of an expression

List the terms of $5x^2 - 3x + 7$ and say how many there are.

Problem 2: Coefficients

Name the coefficient of each variable term in $7y^3 - y + 12$.

Problem 3: Constant term

Identify the constant term of $3x^2 + 8x - 11$.

Problem 4: Factors of a term

List the factors of the term $7xy^2$ and state how many factors there are, counting repeated ones.

Problem 5: Sum or product

Is $3(x+2)$ a sum or a product? List the terms of $3(x+2) + 5x$.

Problem 6: Cost expression

A concert charges \$12 per ticket plus a \$5 service fee on the order, so the cost of t tickets is $12t + 5$. Explain what 12, 5 and $12t$ mean, and complete the table.

Tickets t	1	2	3
Cost C (dollars)	17	29	41

Cost of 1, 2 and 3 tickets.

Problem 7: Evaluating $P(1 + r)^n$

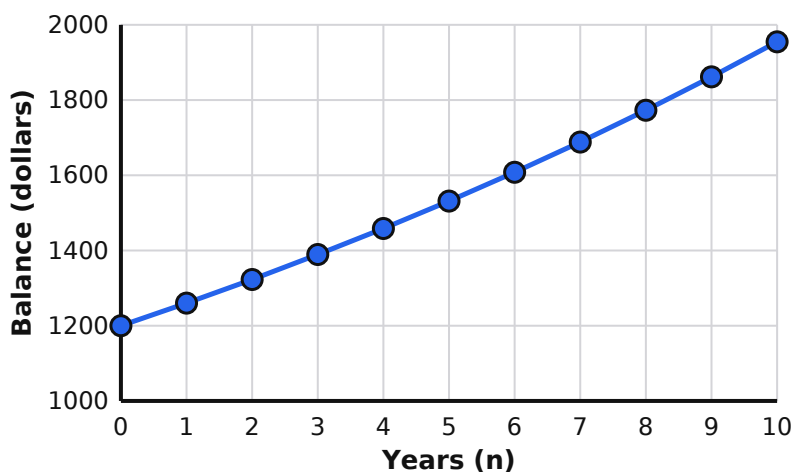
Evaluate $P(1+r)^n$ for $P=500$, $r=0.04$ and $n=3$. Round to the nearest cent.

Problem 8: Growth factor

A balance grows by 4% each year, so the growth factor is 1.04. Explain what multiplying by 1.04 does, and find the balance after one year on \$900.

Problem 9: Reading a growth model

The value of an account after t years is $A=1200(1.05)^t$. Identify the starting amount and the yearly growth rate, then find A when $t=2$.



The account value over 10 years.

Problem 10: Growth or decay

A machine's value is $V=800(0.92)^n$ dollars after n years. Decide whether this is growth or decay, find the yearly percent change, and find V when $n=2$.

Problem 11: Factors of an expression

Identify the two factors of $(x+4)(x-1)$ and the terms of each factor.

Problem 12: Rational or irrational

Classify each number as rational or irrational: $\sqrt{49}$, $\sqrt{20}$, $\frac{22}{7}$, $0.\bar{3}$, $\frac{\pi}{2}$, $\sqrt{\frac{9}{4}}$.

Problem 13: Sum of rationals

Find $\frac{3}{4} + \frac{3}{5}$ and tell whether the sum is rational or irrational.

Problem 14: Rational plus irrational

Is $5+\sqrt{2}$ rational or irrational? Give a decimal approximation to the nearest thousandth.

Problem 15: A nonzero rational times an irrational

Is $3\sqrt{5}$ rational or irrational? Is $0\cdot\sqrt{5}$? Explain the difference.

Problem 16: Product of irrationals

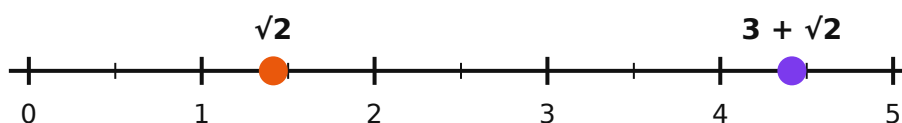
Decide whether $\sqrt{2}\cdot\sqrt{8}$ and $\sqrt{3}\cdot\sqrt{5}$ are rational or irrational.

Problem 17: Sum of irrationals

Decide whether $(3+\sqrt{5})+(3-\sqrt{5})$ and $\sqrt{2}+\sqrt{2}$ are rational or irrational.

Problem 18: Why the sum is irrational

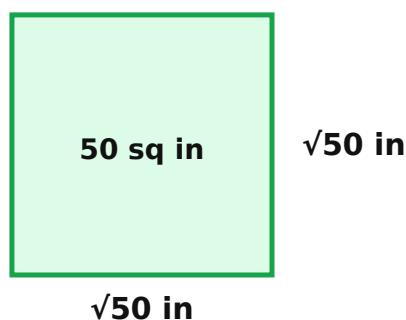
Explain why the sum of a rational number q and an irrational number s must be irrational. Use the number line to see $\sqrt{2}$ and $3+\sqrt{2}$.



Adding 3 slides $\sqrt{2}$ to the right.

Problem 19: A square's perimeter

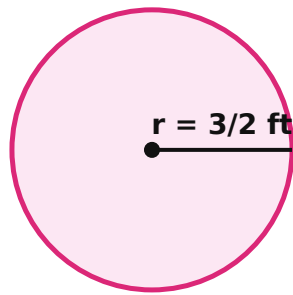
A square has an area of 50 in^2 . Find the side length in simplest radical form, then the perimeter, and tell whether each is rational or irrational.



A square of area 50 square inches.

Problem 20: A circle's circumference

A circle has radius $\frac{3}{2}$ ft. Find its circumference in terms of π . Is it rational? What radius r would make $2\pi r = 8$ a rational number?



Circle with radius $\frac{3}{2}$ ft.

Problem 21: A sale price

A jacket's regular price is p dollars. The sale price is $0.75p - 5$ after a \$5 coupon. Explain what 0.75 , $0.75p$ and 5 mean, then find the price when $p = 64$.

Problem 22: Investment growth

Mei invests \$2,000 at 3.5% interest compounded yearly. Write the expression for the balance after n years, then find the balance and the interest earned after 4 years.

Problem 23: Sums that are rational

Which sums are rational? (a) $\sqrt{9} + \sqrt{16}$ (b) $\sqrt{3} + \sqrt{12}$ (c) $\sqrt{2} + (-\sqrt{2})$ (d) $\frac{1}{3} + \sqrt{7}$

Problem 24: Two accounts

Account A is $A = 1000(1.03)^n$ and account B is $B = 1000 + 40n$, where n is years. Explain how each grows each year, then compare them when $n = 10$ and $n = 20$.