PROBLEMS AND SOLUTIONS
INTRODUCTION TO IRRATIONAL AND IMAGINARY NUMBERS
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PLEASE NOTE THAT YOU CANNOT USE A CALCULATOR ON THE ACCUPLACER - ELEMENTARY ALGEBRA TEST! YOU MUST BE ABLE TO DO THE FOLLOWING PROBLEMS WITHOUT A CALCULATOR!

Problem 1:

If possible, find the square root of 144.

Problem 2:

If possible, find the **cube root** of -27.

Problem 3:

If possible, find the **cube root** of 144 rounded to three decimal places.

Problem 4:

If possible, find the **cube root** of -7 rounded to three decimal places.

Problem 5:

Given the number 81, find its **square root**, **cube root**, and **4th root**, if possible. Round to three decimal places, if necessary.

Problem 6:

If possible, find the **square root** of -81.

Problem 7:

If possible, find the square root of -3.

Problem 8:

Given the number -64, find its **square root** and **cube root**, if possible.

Problem 9:

Write $\sqrt[4]{81}$ as an exponential expression and simplify.

Problem 10:

Write $\sqrt[3]{27}$ as an the exponential expression and simplify.

Problem 11:

Write $\sqrt{9}$ as an exponential expression and simplify.

Problem 12:

Write $\sqrt{y^{10}}$ as an exponential expression and simplify.

Problem 13:

Write $\sqrt{\frac{x^2}{y^6}}$ as an exponential expression and simplify.

Problem 14:

Write $\sqrt[4]{16b^8}$ as an exponential expression and simplify.

NOTE: It is expected that you have permanently committed to memory the following values:

$2^2 = 4$ $2^3 = 8$ $2^4 = 16$ $2^5 = 32$ $2^6 = 64$

$3^2 = 9$ $3^3 = 27$ $3^4 = 81$

$4^2 = 16$ $4^3 = 64$

$5^2 = 25$ $5^3 = 125$

$6^2 = 36$ $7^2 = 49$ $8^2 = 64$ $9^2 = 81$ $10^2 = 100$

$11^2 = 121$ $12^2 = 144$ $13^2 = 169$ $14^2 = 196$ $15^2 = 225$

$16^2 = 256$ $17^2 = 289$ $18^2 = 324$ $19^2 = 361$ $20^2 = 400$

Problem 15:

Write $\sqrt[3]{27x^2y^6}$ as an exponential expression and simplify

Problem 16:

Write $\sqrt[3]{x^2}$ as an exponential expression.

Problem 17:

Write $\sqrt[4]{a^3}$ as an exponential expression.

Problem 18:

Write $\sqrt{a^3}$ as an exponential expression.

SOLUTIONS

You can find detailed solutions below the link for this problem set!

1. 12	2. -3	3. 5.241
4. -1.913	5. 9, 4.327, 3	6. Imaginary Number
7. Imaginary Number	8. Imaginary Number, -4	9. $81^{\frac{1}{4}}, 3$
10. $27^{\frac{1}{3}}, 3$	11. $9^{\frac{1}{2}}, 3$	12. y^5
13. $\frac{x}{y^3}$	14. $2b^2$	15. $3x^{\frac{2}{3}}y^2$
16. $x^{\frac{2}{3}}$	17. $a^{\frac{3}{4}}$	18. $a^{\frac{3}{2}}$