

Mth 28, Homework 7 on sections 8.1, 8.2

Due by Wed, Mar 27.

Please use lots of space and explain your answers, showing clearly any work you had to do. Each question is worth 2 points.

(1) Evaluate these radicals

(a) $\sqrt{49}$

(b) $-\sqrt{64}$

(c) $\sqrt{289}$

(2) Find the two square roots of 121. They are $\sqrt{121}$ and $-\sqrt{121}$

(3) Fill in the blanks:

-13 is a square root of 169 because $(\quad)^2 = (\quad)$

(4) Fill in the blanks:

3 is a fifth root of 243 because $(\quad)^5 = (\quad)$ and we say $\sqrt[5]{\quad} = (\quad)$

(5) Compute these radicals

(a) $\sqrt[3]{125}$

(b) $\sqrt[3]{-8}$

(c) $\sqrt{-64}$

(d) $\sqrt[7]{-1}$

(e) $-\sqrt[4]{10000}$

(The correct answer for some of these might be: this radical is not a real number.)

(6) Can you explain this one without using a calculator? Simplify $\sqrt[6]{19^6}$

(7) Estimate $\sqrt{140}$ without a calculator by finding the two whole numbers it must be between. Which of these two numbers do you think it will be closest to?

(Hint: for example $\sqrt{10}$ is between 3 and 4 because $3^2 < 10 < 4^2$, and it's closer to 3.)

(8) Estimate $\sqrt[3]{300}$ without a calculator by finding the two whole numbers it must be between.

(9) Evaluate these radicals

(a) $\sqrt[6]{64}$

(b) $\sqrt[6]{-64}$

(c) $\sqrt{\frac{9}{49}}$

(d) $-\sqrt[3]{-\frac{1}{27}}$

(10) Simplify these radicals by separating perfect powers

(a) $\sqrt{18}$

(b) $\sqrt{700}$

(c) $\sqrt{147}$

(d) $\sqrt[3]{81}$

(Hint: write the answer to the first one like this, $\sqrt{18} = \sqrt{9 \cdot 2} = \sqrt{9}\sqrt{2} = 3\sqrt{2}$. Also the answer to the second one is not $7\sqrt{10}$.)

(11) Simplify these radicals by separating perfect powers

(a) $\sqrt{75}$

(b) $\sqrt[3]{-56}$

(c) $\sqrt[4]{160}$

If you get stuck on a question or aren't sure if you understand it:

- Go over the relevant class notes and section in the textbook.
- Check if you get the right answer for a similar odd-numbered question in the textbook (answers at the back of the book).
- Ask me about it after class.
- Come to my office hours: Mon 12:00 - 1:00, Wed 12:00 - 1:00 in CP 317.
- Go to the Math Tutorial Lab in-person in CP 303 or online.