

Study guide: Part I/II

This is part I (of II). The second part is a practice test of similar form to the actual one. The purpose of this guide is to help you organize the material we covered this unit, some of the more challenging problems we had, AND some extra guidance and suggestion for learning.

Homework

Below are all the homework assignments we had on this chapter.

You should be thoroughly familiar with these. This means, for example, that you should know how to get to the solution of each, AND do it at the right level. Also, we did many (countless) examples in class. Hopefully you have some record of this (in memory, writing, or pictures).

--Radical expressions

Page 295, Questions 5,6,7,12

Page 296, Questions 14,19,21,33,36,39,41,44,45,46,48

Honors: question 51

--Radical expressions: Multiply, Simplify, Addition

Page 299, Questions 9,15,19,21,23,25,29,31

Page 303, Questions 7,11,17,21,29,37,47

Honors: 56,57

--Rational expressions: Conjugate

Page 308, Question 1,7,25,29,31,45,51

Honors: Page 309 Question 67

--Radical Expressions: Rational numbers as Exponents

Page 315-316, Questions: 9, 15, 19, 25, 33, 41, 45, 49, 55, 69

Honors: 79

--Solving Radical expressions

Pages 319-320, Questions 1,17,19,25,35

Honors: 47, 50

--Complex numbers

Page 323, Questions 9,11,19,21,23,29,31

Honors: 42,43,47

Page 329, Questions 3,5,7,9,17,19,22,31

Honors: 37

Warm-up Drills and Warm-up challenges

Every class we solved one (or more) warm-up problems. Some are harder than others. There are no 'Warm-up' level questions in the test in general, but I believe each one of those gives an additional insight into the material. Attached are the slides copy. I would highly recommend to look at these and verify you understand how to solve each one. We did solve all of those in class! (so you should have the solution).

Warm up slides and Drills

The year(s) in perspective: 2016 -> 2017

1. How many days were there in 2016?

366 (leap year)

2. Is 2017 a prime number?

Yes!! Previous 2011 , next 2027 (2021 = 43*47)

3. How many days will there be in 2017?

365

2017 New year

Unit 7
Radical expressions

What is the value of :

$$\frac{2^{2018} + 2^{2016}}{2^{2018} - 2^{2016}}$$

- (A) -1 (B) 1 (C) $\frac{5}{3}$ (D) 2016 (E) 2^{4032}

Warm-up: Need to know !

Unit 7
Radical expressions

1. $7^{-2} \cdot 7 = ?$

2. $8^3 \cdot 8^{-2} = ?$

3. $(3^{-2} \cdot 4^{-4}) \cdot (4^{-3} \cdot 3^{-2}) = ?$

4. $\frac{4^8}{4^2} = ?$

5. $\frac{3^{-4}}{3^{-6}} = ?$

6. $\frac{32x^3y^{10}}{4x^4y^4} = ?$

7. $(4^2)^4 = \square\square\square?$

8. $(-3)^{-4} = ?$

9. $(4^{-3})^3 = ?$

10. $(10^{-3} \cdot 2^{-2} \cdot 4)^2 = ?$

11. $|-8| = ?$

12. True or False:

a. $|3| = |3|$ | |

b. $|+| = |$ | |

2017 New year

Unit 7
Radical expressions

Which of the following is the same as the ratio

$$\frac{2^{2016} \cdot 3^{2018}}{6^{2017}} \square\square\square$$

(A) $\frac{1}{6}$

(B) $\frac{1}{3}$

(C) $\frac{1}{2}$

(D) $\frac{2}{3}$

(E) $\frac{3}{2}$

Drill warm up

1. $(\sqrt{\quad} + 3)^2$

2. $\sqrt{(\quad + 3)^2}$

3. $\sqrt[3]{(\quad - 2)^3}$

4. $\sqrt{\quad^4}$

Two simple

Unit 7
Radical expressions

1. $2 = \sqrt{8}$

(A) 4

(B) $\sqrt{6}$

(C) $\sqrt{4}$

(D) $\sqrt{2}$

2. $|\quad| + |\quad| =$

(A) 0

(B) $|\quad|$

(C) $|\quad|$

(D) $2 \cdot |\quad|$

Two simple

Unit 7
Radical expressions

1. $2^{18} + 2^{17} + 2^{16} = (?) \cdot (2 + 1)^2$

- (A) 2^4 (B) 2^8 (C) 2^{12} (D) 2^{16}

2. If $\sqrt{2^H} = 2^2 \cdot 2^2$, then the value of H must be:

- (A) $2^2 \cdot 2^2$ (B) $\sqrt{2^2 \cdot 2^2}$ (C) $2^2 + 2^2 + 2^2$ (D) $1 \square$

Radicals

Unit 7
Radical expressions

AMC10

Simplify

$$\sqrt{\frac{2^{x+4} - 2(2^{x+1})}{2(2^{x+3})}}$$

- (A) $\frac{3}{8}$ (B) $\frac{\sqrt{3}}{4}$ (C) 2^x (D) $\frac{x\sqrt{3}}{4}$ (E) $\frac{\sqrt{3}}{2}$

Drill warm up

1. Simplify: $\frac{2}{3}\sqrt{4\frac{1}{2}} \oplus \frac{3}{2}\sqrt[3]{16} \oplus \frac{1}{4}\sqrt{72} \oplus \square$

2. $\frac{12\sqrt{68x^5y^3}}{\sqrt{4x^2y^2}} \oplus \frac{9\sqrt{85x^7y^5}}{\sqrt{5x^4y^3}} = \square$

A. $3\sqrt{17^{-3}}$

B. $6\sqrt{68^{-3}} \oplus 9\sqrt{17^{-3}}$

C. $21\sqrt{17}$

D. $3|\sqrt{17}$

Radicals

Unit 7
Radical expressions

AMC10

Assume $x < 0$. Which of the following is equivalent to

$$\sqrt[4]{\frac{x^3}{1 \oplus \frac{x-1}{x}}} ?$$

(a) $-$

(b)

(c) 1

(d) $\sqrt[4]{\frac{x}{2}}$

(e) $x\sqrt{-1}$

Radicals

Unit 7
Radical expressions

AMC10

Simplify $\sqrt{x \sqrt{\sqrt{\sqrt[3]{25}}}}}$ (x is a positive integer greater than 1)

$$\sqrt{x \sqrt{\sqrt{\sqrt[3]{25}}}}$$

- (A) 25^{3x} (B) $25^{\frac{1}{3x}}$ (C) $5^{\frac{1}{3x}}$ (D) 5^{3x} (E) none of these

Radicals

Unit 7
Radical expressions

$$\sqrt{2 \sqrt{2 \sqrt{2 \sqrt{2 \dots}}}}$$

Radicals

Unit 7
Radical expressions

Explain:

$$\begin{aligned} 1 &= \sqrt{1} \\ &= \sqrt{(-1) \cdot (-1)} \\ &= \sqrt{-1} \cdot \sqrt{-1} \\ &= i \cdot i \\ &= -1 \end{aligned}$$

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