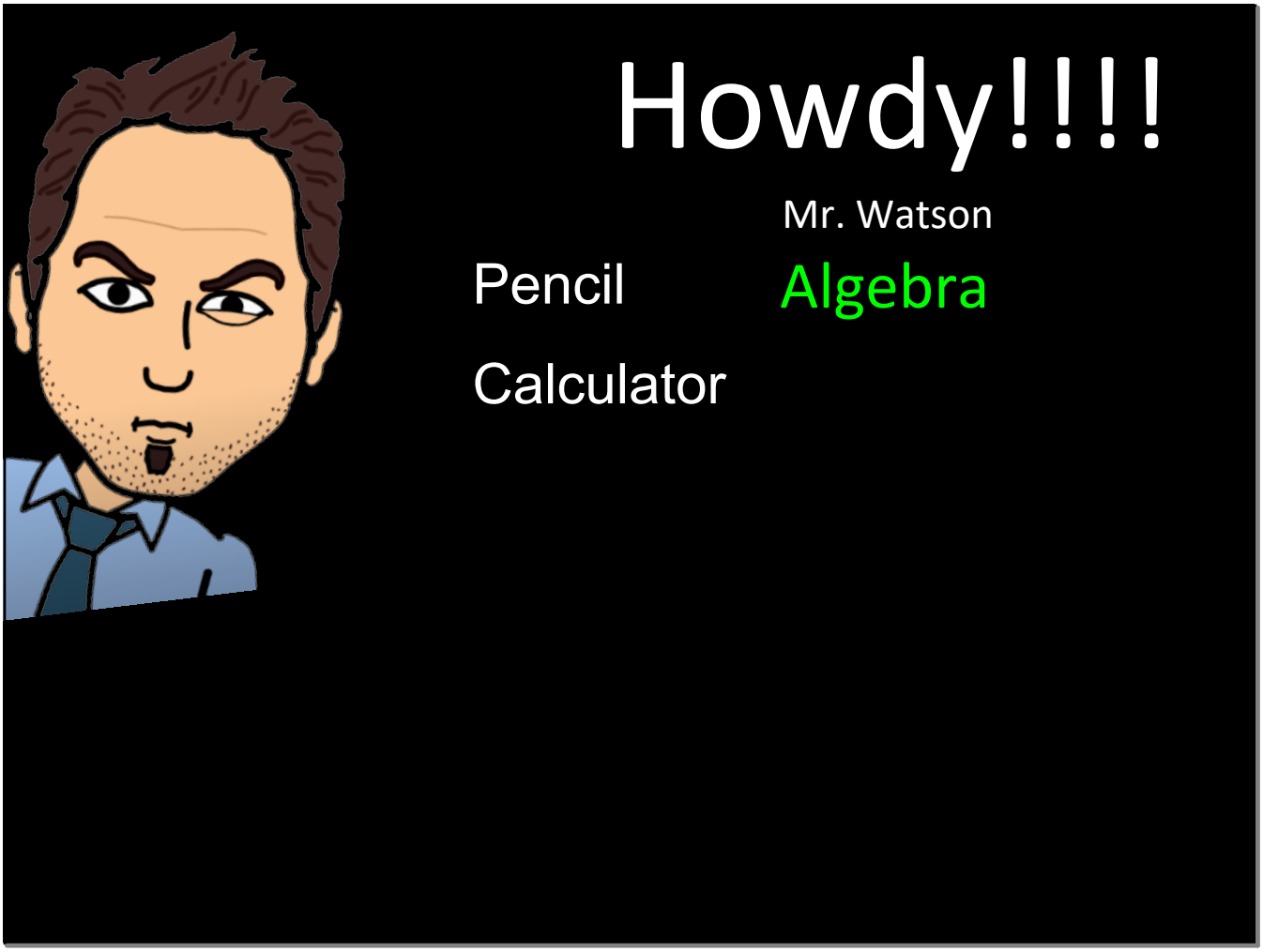


Jan 5-3:51 PM

Algebra 1 Name_____ ID: 1

Day 2 - Adding and Subtracting Radicals Date_____ Period____

Simplify.

1) $6\sqrt{180x^4y^3}$

2) $4\sqrt{28u^3v^3}$

3) $\sqrt{3}+\sqrt{3}$

4) $\sqrt{6}+\sqrt{6}$

5) $-\sqrt{20}+2\sqrt{5}$

6) $2\sqrt{20}-3\sqrt{45}$

7) $\sqrt{3}+\sqrt{3}+\sqrt{3}$

8) $\sqrt{2}+\sqrt{2}+\sqrt{5}$

9) $-3\sqrt{3}-\sqrt{3}+2\sqrt{18}$

10) $-\sqrt{8}-\sqrt{12}-3\sqrt{12}$

11) $-2\sqrt{8}-2\sqrt{12}+3\sqrt{18}$

12) $-\sqrt{2}-\sqrt{2}+3\sqrt{2}$

13) $\sqrt{15}(2-3\sqrt{6})$

14) $-5\sqrt{6}(2\sqrt{3}+3)$

Radical Warm Up

$3\sqrt{245x^3}$

$3\sqrt{49}\sqrt{5}\sqrt{x^2}\sqrt{x}$

$21x\sqrt{5x}$

out in simplify $3\sqrt{10} \bullet -2\sqrt{2}$

$-6\sqrt{20}$

$-6\sqrt{5}\sqrt{4}$

$-12\sqrt{5}$

simplify & LT $2\sqrt{8}-6\sqrt{8}$

$2\sqrt{4}\sqrt{2}$ $-6\sqrt{4}\sqrt{2}$

$4\sqrt{2}-12\sqrt{2}$

$-8\sqrt{2}$

$5\sqrt{2}\left(3\sqrt{3}+2\sqrt{12}\right)$

$15\sqrt{6}+10\sqrt{24}$

$10\sqrt{4}\sqrt{6}$

$15\sqrt{6}+20\sqrt{6}$

$35\sqrt{6}$

Algebra 1 Unit 4 Notes

Name _____ Date_____

Rational and Irrational Numbers

Rational Numbers

- Numbers that can be written as a fraction of INTEGERS
- Terminating decimals
- Repeating decimals

6 or $\frac{6}{1}$	can also be written as	6.0
-2 or $\frac{-2}{1}$	can also be written as	-2.0
$\frac{1}{2}$	can also be written as	0.5
$\frac{-5}{4}$	can also be written as	-1.25
$\frac{2}{3}$	can also be written as	0.666666666... $0.\overline{6}$
$\frac{21}{55}$	can also be written as	0.38181818... $0.3\overline{18}$

Examples:	Non-examples:

Irrational Numbers

- Numbers that cannot be written as a fraction of integers or a ratio.
- Decimals that are non-terminating, non-repeating.

$\pi = 3.141592654.....$

$\sqrt{2} = 1.414213562.....$

and 0.12122122212…

Not Perfect Square

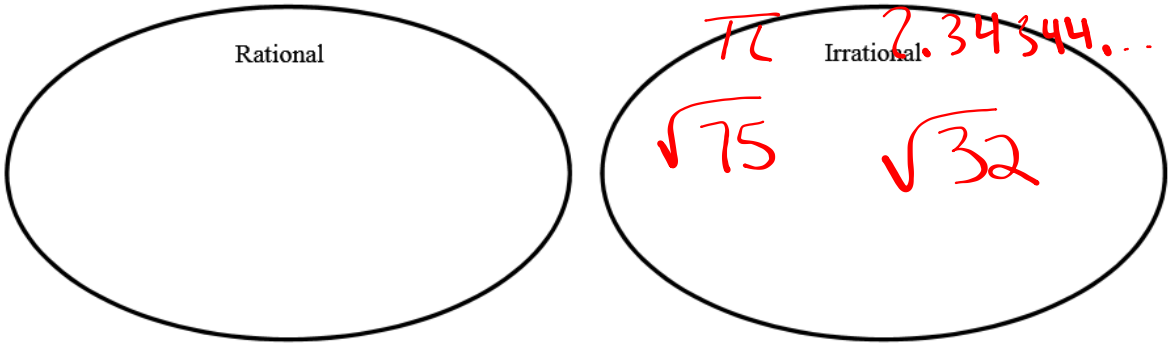
Examples:	Non-examples:
$\sqrt{3}$ $\sqrt{5}$ $\sqrt{23}$ $\sqrt{13}$ $\sqrt{14}$	$\sqrt{4}$ $\sqrt{9}$ $\sqrt{25}$ $\sqrt{16}$

Algebra 1 Unit 4 Notes

Sort the numbers into rational or irrational. Write the numbers in the appropriate bubble.

0.8 $\sqrt{64}$ 0 $\sqrt{32}$ -19 $-\sqrt{100}$ 2.343443444...

$\frac{3}{7}$ $\sqrt{75}$ $6\frac{2}{7}$ $12.6\overline{7}$ $\sqrt{121}$ $\frac{12}{5}$ π



1. For each of the numbers below, decide whether it is rational or irrational.
Explain your reasoning in detail.

5	R nice # (whole #)
$\frac{5}{7}$	R fraction
0.575	R decimal stops
$\sqrt{5}$	I not Perfect Square
$5+\sqrt{7}$	I $\sqrt{7}$ is not Perfect Square
$\frac{\sqrt{10}}{2}$	I $\sqrt{10}$ is not Perfect Square
$\sqrt{2}\cdot\sqrt{32}$	R $\sqrt{64}$ is Perfect Square

Algebra 1 Unit 4 Notes

2. Some students were classifying numbers as rational and irrational.

Decide whether you agree or disagree with each statement.

Correct any errors. Explain your answers clearly.

Student	Statement	Agree or disagree?
Otis	$\frac{\sqrt{3}}{8}$ is a rational number because it can be written as a fraction.	
Lulu	$\frac{\sqrt{3}}{8}$ is irrational because $\sqrt{3}$ is irrational.	
Leon	$0.\overline{286}$ is rational because you can write it as the fraction $\frac{286}{1000}$.	
Joan	$0.\overline{286}$ is an irrational number because that decimal will carry on forever.	
Ray	0.286 (rounded to three decimal places) might be rational or irrational.	
Arita	0.286... is rational - the little dots show the digits carry on in the same pattern forever.	

Algebra 1 Unit 4 Notes

Sometimes, Always, or Never

Decide if each of the following statements is sometimes, always, or never true. Come up with a few examples or counterexamples to prove your point.

1. Rational + Rational = Rational

$4 + 9 = 13$

$R + R = R$

Always True

2. Rational + Irrational = Irrational

$2 + \sqrt{2} = 2+\sqrt{2}$

$R + I = I$

Always True

3. Irrational + Irrational = Irrational

$\sqrt{23} + 1\sqrt{23} = 2\sqrt{23}$

$I + I = I$

$\sqrt{2} + -\sqrt{2} = 0$

$I + I = R$

Sometimes True

4. Rational x Rational = Rational

$10 \times 13 = 130$

Always True

5. Rational x Irrational = Irrational

$13 \times \sqrt{2} = 13\sqrt{2}$

Always True

6. Irrational x Irrational = Irrational

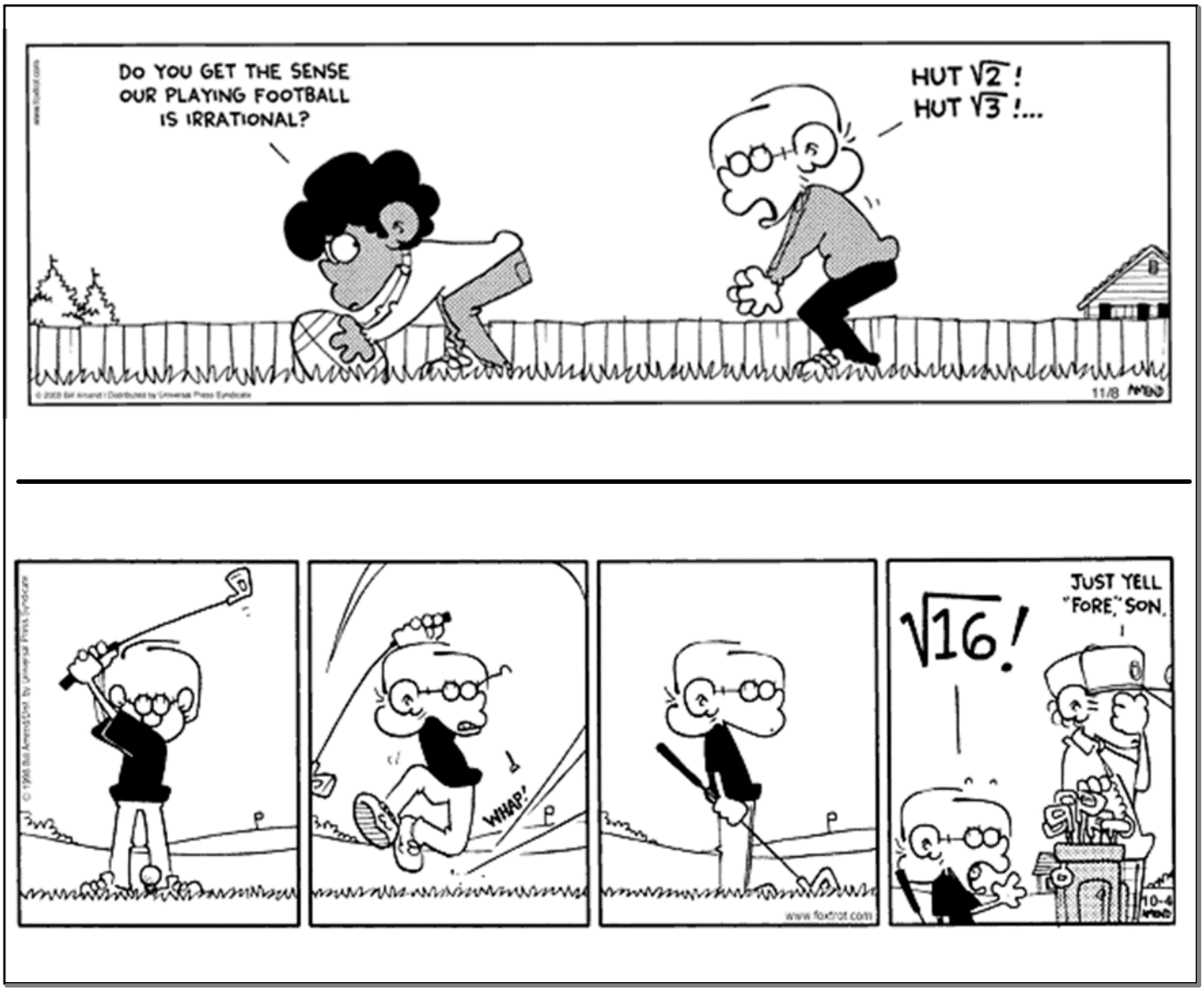
$\sqrt{13} \times \sqrt{14} = \sqrt{182}$

$I \times I = I$

$\sqrt{2} \times \sqrt{8} = \sqrt{16}$

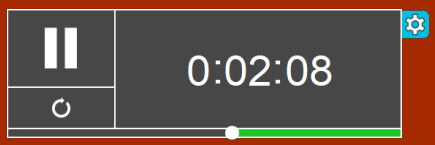
$I \times I = R$

Sometimes True


DO YOU GET THE SENSE OUR PLAYING FOOTBALL IS IRRATIONAL?
HUT √2 ! HUT √3 !...
WHAP!
√16!
JUST YELL "FORE," SON.
www.foxtrot.com

Sep 9-9:43 AM

Break



Sep 13-8:34 AM

Foundations of Algebra Unit 2: Complex Number Systems Practice

Day 8: Irrational & Rational Numbers Name: _____

Practice Assignment 0 25 50 75 100

Decide whether the following numbers, sums or products yield a number that is rational or irrational. Simplify if necessary and explain for each problem why it is a rational or irrational number.

1. $1.\overline{233}$

R

repeats

2. 1.245...

I

never ends

3. $\frac{3}{5}$

R

fraction

4. 3π

I

π

5. $\sqrt{9}+\sqrt{7}$

$\sqrt{9}+\sqrt{7}$

I

not P.S.

6. $\sqrt{4}+\sqrt{16}$

2 + 4

6

R

whole #

7. $\sqrt{2}\cdot\sqrt{18}$

$\sqrt{36}$

6

R

whole #

8. $\frac{\sqrt{5}}{2}+3$

I

$\sqrt{5}$ is not P.S

9. $(\sqrt{8}+4)\cdot 4$

10. $\sqrt{8}(5\sqrt{8}+\sqrt{2})$

* 11. $2\sqrt{2}(5+\sqrt{2})$

$10\sqrt{2}+2\sqrt{4}$

$10\sqrt{2}+4$

I

$\sqrt{2}$ is not P.S

12. $2(\sqrt{5}+\sqrt{7})$

Foundations of Algebra Unit 2: Complex Number Systems Practice

Given the following values, determine if the sums or products will be rational or irrational.

$V = \sqrt{16}$ $W = -\sqrt{10}$ $X = \sqrt{4}$ $Y = 8$ $Z = \sqrt{10}$

13. $x + y$

14. xy

15. z^2

16. x^2

17. $x + z$

18. yz

19. $w + z$

20. wz

21. vx

22. $v + x$

23. vy

24. $v + w$

Ticket in the Door

CTLS

Sep 11-11:12 AM

Radical Practice

Sep 8-9:39 AM

Algebra 1 Name_____ ID: 1

Radical Practice

Date_____ Period____

Simplify.

1) $-\sqrt{18}$

2) $-3\sqrt{12}$

3) $4\sqrt{8}$

4) $-3\sqrt{18}$

5) $-3\sqrt{30}$

6) $-4\sqrt{48}$

7) $-5\sqrt{27}$

8) $2\sqrt{48}$

9) $-5\sqrt{45}$

10) $-\sqrt{20}$

11) $2\sqrt{12} \cdot 2\sqrt{15}$

12) $\sqrt{6} \cdot \sqrt{6}$

13) $\sqrt{2} \cdot -\sqrt{5}$

14) $\sqrt{12} \cdot \sqrt{6}$

15) $\sqrt{18} \cdot 4\sqrt{3}$

16) $\sqrt{18} \cdot \sqrt{18}$

17) $\sqrt{25} \cdot \sqrt{25}$

18) $3\sqrt{24} + 3\sqrt{24}$

19) $-3\sqrt{20} - 2\sqrt{5}$

20) $3\sqrt{20} + 2\sqrt{45}$

21) $3\sqrt{8} + 2\sqrt{8}$

22) $-2\sqrt{24} - \sqrt{54}$

23) $2\sqrt{45} - 3\sqrt{5}$

24) $2\sqrt{8} + 2\sqrt{2}$

25) $-2\sqrt{27} - 2\sqrt{12}$

26) $\sqrt{3}(2 - 2\sqrt{6})$

27) $5\sqrt{3}(2 + \sqrt{5})$

28) $4\sqrt{2}(\sqrt{2} + 5)$

29) $\sqrt{5}(2 - \sqrt{10})$

30) $\sqrt{15}(2\sqrt{10} - \sqrt{6})$