

Announcement:

Chapter 10 Test on
Tuesday, 1/17! (1st day
after long weekend...)

Homework Review - 10.4

(59) $W = 0.0018 D^2 ds$ $\frac{W}{0.0018 ds} = D^2$

	w	d	s	
A	1	4.5	2.65	$D^2 = 46.6 \approx 6.7$
D	1	4.5	3.52	$D^2 = 35.1 \approx 5.9$
R	1	4.5	4.00	$D^2 = 30.9 \approx 5.5$

$$\textcircled{33} \quad \frac{7(x-3)^2}{7} = \frac{35}{7}$$
$$(x-3)^2 = 5$$

$$x-3 = \sqrt{5}$$

$$x-3 = -\sqrt{5}$$

$$x-3 = 2.24$$

$$x-3 = -2.24$$

$$x = 5.24$$

$$x = 1.24$$

Solving Quadratic Equations using the Quadratic Formula

$$ax^2 + bx + c = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

PEDS
↑

There is a mathematical formula that allows you to compute the solutions to any quadratic equation.

Just plug in a, b, and c

$$3x^2 + 5x = 8$$

$$\frac{3}{a}x^2 + \frac{5}{b}x - \frac{8}{c} = 0$$

$$\frac{-5 + \sqrt{5^2 - 4(3)(-8)}}{2(3)}$$

$$\frac{-5 + \sqrt{25 - (12)(-8)}}{6} \quad X = 1$$

$$\frac{-5 + \sqrt{25 + 96}}{6}$$

$$\frac{-5 + \sqrt{121}}{6}$$

$$\frac{-5 + 11}{6}$$

$$\frac{-5 - \sqrt{5^2 - 4(3)(-8)}}{2(3)}$$

$$X = -2.67$$

$$X = -2\frac{2}{3} = -\frac{8}{3}$$

1. $x^2 + 7x - 80 = 0$

6.1, -13.1

2. $3x^2 - x - 16 = 0$

2.5, -2.1

9. $4x^2 - x - 20 = 0$

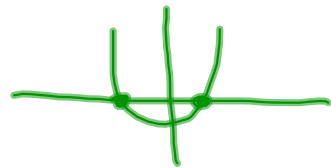
2.4, -2.1

10. $5x^2 + x - 9 = 0$

1.2, -1.4

When to use different techniques...

$$x^2 - 2x + 1$$



$$x^2 = d$$

$$-147x^2 - 13x + 41$$

Solve by factoring when ...

easy to factor!

Solve by graphing when ...

estimation is close enough

Solve with square roots when ...

$$b=0$$

Use the quadratic formula when ...

*need exact #'s and
other methods aren't practical*

13. $6x^2 - 216 = 0$

Sq. rt.

14. $8x^2 = 56$

Sq. rt.

15. $5x^2 - 10x = 0$

factoring

16. $x^2 + 8x + 7 = 0$

factor

17. $x^2 - 6x + 1 = 0$

quadratic/
graphing

18. $-9x^2 + 10x = 5$

quadratic/
graph

Pasta For the period 1990–2003, the amount of biscuits, pasta, and noodles y (in thousands of metric tons) imported into the United States can be modeled by the function $y = 1.36x^2 + 27.8x + 304$ where x is the number of years since 1990.

- a.** Write and solve an equation that you can use to approximate the year in which 500 million pounds of biscuits, pasta, and noodles were imported.
- b.** Write and solve an equation that you can use to approximate the year in which 575 million pounds of biscuits, pasta, and noodles were imported.

Eggs For the period 1997–2003, the number of eggs y (in billions) produced in the United States can be modeled by the function $y = -0.27x^2 + 3.3x + 77$ where x is the number of years since 1997.

Write and solve an equation that you can use to approximate the year(s) in which 80 billion eggs were produced.

Homework:

p. 674, 13-22 by 3, 27, 47, 49a