

## Classwork on radicals, square roots, quadratic equations

1. Simplify  $\sqrt{48}$  (hint: factor)
2. Simplify  $\sqrt{18} + \sqrt{32} + \sqrt{75}$  (hint: factor, distribute)
3. Simplify  $\sqrt{\frac{5}{3}}$  (hint: quotient rule, simplify fractions)
4. Solve for  $x$ :  $x^2 + 9 = 25$  (hint: set equal to zero and factor, or not)
5. Solve for  $x$ :  $(3\sqrt{5})^2 + (3\sqrt{2})^2 = x^2$  (square each square)
6. Solve for  $x$ . (Hint: get 0 on one side and factor)

a)  $x^2 - 10x = -16$

b)  $x^2 + 5x = 0$

## Useful properties

1.  $\sqrt{ab} = \sqrt{a} \sqrt{b}$
2.  $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$
3. If  $a^2 = x^2$  then  $x = \pm a$
4. Property of zero: If  $ab = 0$  then  $a = 0$  or  $b = 0$ . This is one reason factoring is useful. For example to solve  $x^2 + 4x + 3 = 0$ , we can factor to solve  $(x + 3)(x + 1) = 0$ , which is much easier.
5. Distributive law box for multiplying and factoring:

	$x$	$+1$
$x$	$x^2$	$x$
$+3$	$3x$	$3$