

1.4

**Ex 8**Variables  
that involve squares

Day 3

①

$$(a) A = \frac{\pi d^2}{4} \text{ for } d$$

$$\frac{4A}{\pi} = \frac{\pi d^2}{\pi} \rightarrow \sqrt{\frac{4A}{\pi}} = \sqrt{d^2}$$

$$d = \pm \sqrt{\frac{4A}{\pi}}$$

$$d = \pm \frac{\sqrt{4} \sqrt{A} \sqrt{\pi}}{\sqrt{\pi} \sqrt{\pi}}$$

$$d = \pm \frac{2 \sqrt{A} \sqrt{\pi}}{\pi}$$

$$d = \pm \frac{2 \sqrt{A \pi}}{\pi}$$

Note:

→ reject negative, because diameter  
can't be negative

$$(b) r t^2 - s t = k \quad (r \neq 0), \text{ for } t$$

$$\frac{r t^2 - s t - k}{-k \quad -k} = 0 \quad a = r \quad b = -s \quad c = -k$$

$$x = \frac{s \pm \sqrt{s^2 - 4(r)(-k)}}{2r}$$

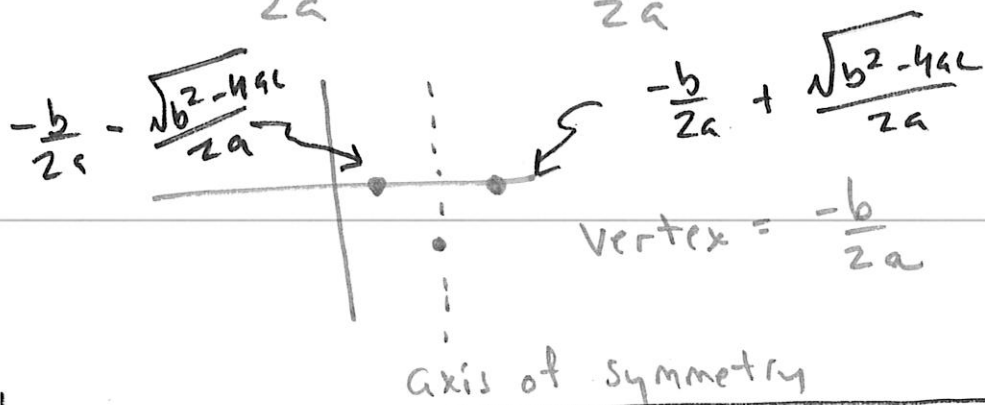
$$\Rightarrow x = \frac{s \pm \sqrt{s^2 + 4rk}}{2r}$$

# 1.4 Discriminant

Day 3 (2)

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

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

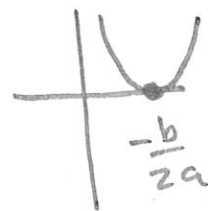


Discriminant =  $b^2 - 4ac$

$> 0$  Ex 5 2 Real Solutions

$= 0$  1 Real Solution →

$< 0$  Ex 6 2 Complex Solutions



**Ex 9** (a)  $5x^2 + 2x - 4 = 0$

Use the discriminant to determine the number and type of solutions.

$$b^2 - 4ac = 2^2 - 4(5)(-4)$$
$$4 + 80$$
$$84$$

discriminant  $> 0$

**2 real solutions**

6.4

Ex 9 Continued(3)  
Day 3

$$\textcircled{b} \quad \begin{array}{r} x^2 - 10x = -25 \\ \phantom{x^2} + 25 \phantom{-10x} + 25 \\ \hline \end{array}$$

$$x^2 - 10x + 25 = 0$$

$$b^2 - 4ac = (-10)^2 - 4(1)(25)$$

$$= 100 - 100 = \textcircled{0} \rightarrow \boxed{1 \text{ real solution}}$$

$$\textcircled{c} \quad 2x^2 - x + 1 = 0$$

$$b^2 - 4ac = (-1)^2 - 4(2)(1)$$

$$= 1 - 8$$

$$= \textcircled{-7} \rightarrow$$

 $\boxed{2 \text{ complex solutions}}$ 

83, 89