

Unit 7/9 - Quadratic Equations

6. What is the best method in order to factor to solve the following equation: $x^2 - 144$? - 2 terms

- (A) Factoring trinomials when $a = 1$
 (C) Factoring trinomials when $a \neq 1$

- (B) GCF Method
 (D) Difference of Two Squares - both terms are perfect squares

7. Factor: $x^2 - 144 \rightarrow$ Diff. of 2 squares

- (A) $(x + 12)^2$
 (C) $(x + 12)(x - 12)$

- (B) $(x - 12)^2$
 (D) $(x + 12)(x + 12)$

$$\sqrt{x^2} = \sqrt{144}$$

$$x \cdot x = 12 \cdot 12$$

$$(x + 12)(x - 12)$$

8. List the factored form of the following expression: $x^2 + 10x + 25 \rightarrow$ 3 terms $\rightarrow a = 1$;

- (A) $(x + 5)^2$
 (C) $(x + 5)(x - 5)$

- (B) $(x - 5)^2$
 (D) $(x - 5)(x - 5)$

X-method

~~Diagram showing a box method for $x^2 + 10x + 25$. The top row contains x^2 and 25 , and the bottom row contains $5x$ and $5x$. The sides are labeled x and 5 . The product $5 \cdot 5 = 25$ is written below the box.~~

Diagram showing a box method for $x^2 + 10x + 25$. The top row contains x^2 and $10x$, and the bottom row contains $5x$ and 25 . The sides are labeled x and 5 . The product $5 \cdot 5 = 25$ is written below the box.

$(x + 5)(x + 5) \rightarrow (x + 5)^2$

9. What would be the first step in factoring the trinomial expression: $4x^3 + 24x^2 + 36x$? \rightarrow 3 terms;

- (A) X-Method
 (C) Factor out a GCF of 4

- (B) Box Method
 (D) Factor out a GCF of $4x$

$a \neq 1$

Diagram showing prime factorization for $4x^3 + 24x^2 + 36x$.
 $4x^3 = 2 \cdot 2 \cdot x \cdot x \cdot x$
 $24x^2 = 6 \cdot 4 \cdot x \cdot x = 2 \cdot 3 \cdot 2 \cdot 2 \cdot x \cdot x$
 $36x = 6 \cdot 6 \cdot x = 2 \cdot 3 \cdot 2 \cdot 3 \cdot x$

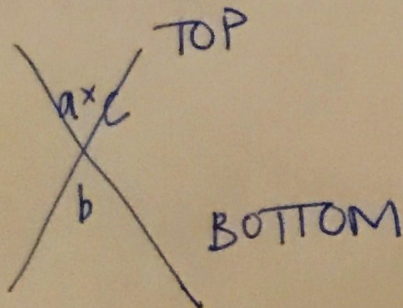
$GCF = 2 \cdot 2 \cdot x = 4x$

- GCF
- X-method
- box method

10. When using the X-Method to factor, what term(s) from the expression goes in the top of the X?

- (A) $a \cdot c$
 (C) $a \cdot b$

- (B) a
 (D) b



a b c

$$\frac{-4 \pm 3}{4-1} = 3 \checkmark$$

B

11. Factor: $2x^2 + 3x = 2 \rightarrow 3$ terms

- (A) $(2x+1)(x+2)$
- (C) $(x-1)(x+4)$

- (B) $(2x-1)(x+2)$ - rewrite \checkmark
- (D) $(x+1)(x-4)$

$$2x^2 + 3x = 2$$

$$\begin{array}{r} 2x^2 + 3x = 2 \\ -2 \quad -2 \\ \hline \end{array}$$

$$\begin{array}{r} -4 \quad (x) \\ +4 \quad a \cdot c = -1 \quad (2x) \\ \hline \end{array}$$

a	
$2x^2$	$4x$
$-1x$	-2
b	c

- GCF (other than 1)
- X-method \checkmark
- box method

$$2x^2 + 3x - 2 = 0$$

a b c

12. When using the X-Method to factor the above trinomial, which number did you place in the bottom of the X?

- (A) 2
- (C) -4

$$2x^2 + 3x = 2$$

- (B) 3
- (D) -2

(zeros)

a b c

C

13. Solve by factoring: $x^2 - 2x - 15 = 0 \rightarrow 3$ terms $\rightarrow a=1$; X-method

- (A) $x = -5$ and $x = 3$ $a=1$ $b=-2$
- (C) $x = 5$ and $x = -3$ $c = -15$

- (B) $x = -5$ and $x = 10$
- (D) $x = 5$ and $x = -10$

$$\begin{array}{r} -15 \quad (x) \\ +3 \quad a \cdot c = -15 \\ \hline \end{array}$$

$$\begin{array}{r} (x) \quad (+) \\ -15 \quad -2 \\ \hline 3 \cdot -5 = -15 \checkmark \end{array}$$

$$(x+3) = 0$$

$$\begin{array}{r} (x+3) = 0 \\ -3 \quad -3 \\ \hline x = -3 \end{array}$$

$$(x-5) = 0$$

$$\begin{array}{r} (x-5) = 0 \\ +5 \quad +5 \\ \hline x = 5 \end{array}$$

14. What is the best method in order to factor to solve the following equation: $x^2 - 12x = -32 \rightarrow 3$ terms

- (A) Factoring trinomials when $a=1$
- (C) Factoring trinomials when $a \neq 1$

- (B) GCF Method
- (D) Difference of Two Squares

a b c

$$a=1$$

$$b=-12$$

$$c=-32$$

15. Solve: $2x^2 - 5 = 13$

- (A) $x = 5$ and -5
- (C) $x = 9$ and -9

- (B) $x = \frac{\sqrt{13}}{2}$ and $-\frac{\sqrt{13}}{2}$
- (D) $x = 3$ and -3