Multiple choice factoring questions →
• Question in $Y_1 =$
• Answer choice in $Y_2 =$
• find GRAPH until they match!

Algebra I
Unit 7 Review
Name! Key
Remember to study any old quizzes, homework, and your notes!

For #1-4, find the expression that is equivalent to the given expression.

1. $6x^2 - 12x - 33$
   - ~~A.~~ $-3(2x^2 - 12x - 33)$
   - ~~B.~~ $-3(2x^2 - 4x - 11)$
   - C. $3(2x^2 - 12x - 33)$
   - D. $3(2x^2 - 4x - 11)$

$6x^2$: 1|6, 2|3 (xx) — $-12x$: 1|12, 2|6, 3|4 (x) — -33: 1|33, 3|11

↳ not every term has an x!

$3(2x^2 - 4x - 11)$

3. $(x-1)(x-9)$ Multiplying - terms go on outside
   - A. $x^2 + 9$
   - B. $x^2 - 10x + 9$
   - C. $x^2 - 10x - 9$
   - D. $x^2 + 10x + 9$

	x	-1
x	x^2	$-1x$
-9	$-9x$	$+9$

$x^2 - 1x - 9x + 9$

$x^2 - 10x + 9$

2. $x^2 + 5x - 24$ NO GCF. a:1 b:5 c:-24
   - A. $(x+3)(x+8)$
   - B. $(x-3)(x-8)$
   - C. $(x+3)(x-8)$
   - D. $(x-3)(x+8)$

a·c = -24

-24	
1	-24 = -23
2	-12 = -10
3	-8 = -5
-3	+8 = 5

↳ add to b

	x	-3
x	x^2	$-3x$
$+8$	$8x$	-24

$(x-3)(x+8)$

4. $8x^4 + 22x^3 - 6x^2$ GCF: $2x^2$ a:4 b:11 c:-3
   - A. $2x^2(4x-1)(x+3)$
   - B. $2x^2(4x-1)(x-3)$
   - C. $2x^2(4x+1)(x-3)$
   - ~~D.~~ $2(4x-1)(x+3)$

$2x^2(4x^2 + 11x - 3)$

4(-3)

-12	
1	-12 = -11
-1	12 = 11

	$4x$	-1
x	$4x^2$	$-1x$
$+3$	$12x$	-3

$2x^2(4x-1)(x+3)$

5. The area of a rectangle is $(6x^2 + 7x + 2)$ square inches and the length is $(3x+2)$ inches. Which expression best represents the rectangle's width? A=l·w
   - A. $(2x+2)$ inches
   - B. $(2x-2)$ inches
   - C. $(2x+1)$ inches
   - D. $(2x-1)$ inches

	$3x$	$+2$
$2x$	$6x^2$	
$+1$		$+2$

Area - put inside box

length/width - put on sides of box

* could check in calculator by Y_1 = area Y_2 = (length)(width)

6. A square has an area of $25x^2 + 20x + 4$ square feet. Find the length of the square. A=s²
   - A. $(x+2)$ meters
   - B. $(x-2)$ meters
   - C. $(5x+2)$ meters
   - D. $(5x-2)$ meters

	$5x$	$+2$
$5x$	$25x^2$	$+10x$
$+2$	$+10x$	$+4$

$(5x+2)(5x+2)$

25·4

100	
1	100 = 101
10	10 = 20

* can check in calculator by Y_1 = area Y_2 = (choice)²

MUST factor

7. Which binomial is a factor of $26x^2 - 43x + 6$? a:26 b:-43 c:6
   - A. $2x-3$
   - B. $2x+3$
   - C. $2x-2$
   - D. $2x+2$

ac = 26·6

156	
1	156 = 157
2	78 = 80
3	52 = 55
4	39 = 43
-4	-39 = -43

	$13x$	-2
$2x$	$26x^2$	$-4x$
-3	$-39x$	$+6$

$(13x-2)(2x-3)$

MUST factor

8. Which binomial is a factor of $2x^2 - 3x - 2$? a:2 b:-3 c:-2
   - A. $2x-1$
   - B. $2x+1$
   - C. $2x-2$
   - D. $2x+2$

a·c = 2(-2)

-4	
1	-4 = -3
-1	4
2	-2

	$2x$	$+1$
x	$2x^2$	$+1x$
-2	$-4x$	-2

$(2x+1)(x-2)$

For #9-10, find the greatest common factor.

9. $6x^4y^3 - 12x^4y^2 + 6x^3y^2$

$6x^4y^3 - 12x^4y^2 + 6x^3y^2$

1 | 6	1 | 12	1 | 6
2 | 3	2 | 6	2 | 3
	3 | 4	
xxxx	xxxx	xxx
yyy	yy	yy

$6x^3y^2$

A. 6

B. $6xy$

C. $6x^3y^2$

D. $6x^9y^6$

10. $55a^4b^3 + 20a^3b^2 - 5a^2b$

smallest # ... do the other #s divide by 5? yes

aaaa aaa aa
bbb bb b

$5a^2b$

A. 5

B. $5a^2b$

C. $5ab^2$

D. $5a^6b^3$

Use exponent rules to simplify expressions in #11-12. Review!

(Anything)^0 = 1!

11. $\dfrac{3x^2y^{-3}4^0}{6xy^{-2}} = \dfrac{3}{6}\dfrac{x^2y^2}{xy^3} = \dfrac{1xxyy}{2xyyy} = \dfrac{1x}{2y}$

Negative exponents MOVE bases

A. $2xy$

B. $3xy$

C. $\dfrac{x}{2y}$

D. $\dfrac{x}{3y}$

12. $(2x^2yz^3)(8x^{-3}y^2)$

- Multiply coefficients
- Add exponents on like bases

$(2)(8)x^{2+-3}y^{1+2}z^3$

$16x^{-1}y^3z^3$

$\dfrac{16y^3z^3}{x^1}$

A. $10x^5y^3z^3$

B. $16x^5y^3z^3$

C. $\dfrac{10y^3z^3}{x}$

D. $\dfrac{16y^3z^3}{x}$

13. Which binomials are a difference of two squares? subtracting!

~~I.~~ $6a^2 - 25$ · 6 is not a square $\begin{array}{c|c} 1 & 6 \\ 2 & 3 \end{array}$

~~II.~~ $4x^2 + 16$ Not subtracting

III. $b^2 - 9$ ✓

IV. $49y^2 - 64$ ✓

Perfect squares:
- even exponent
- coefficient is a square

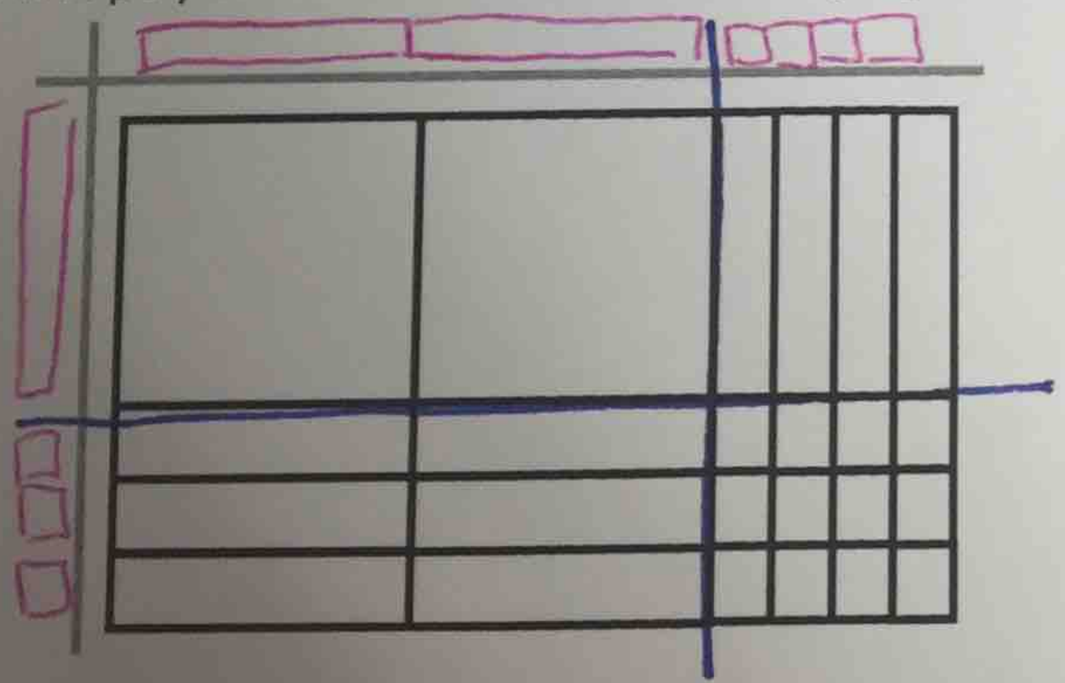
~~A.~~ I only

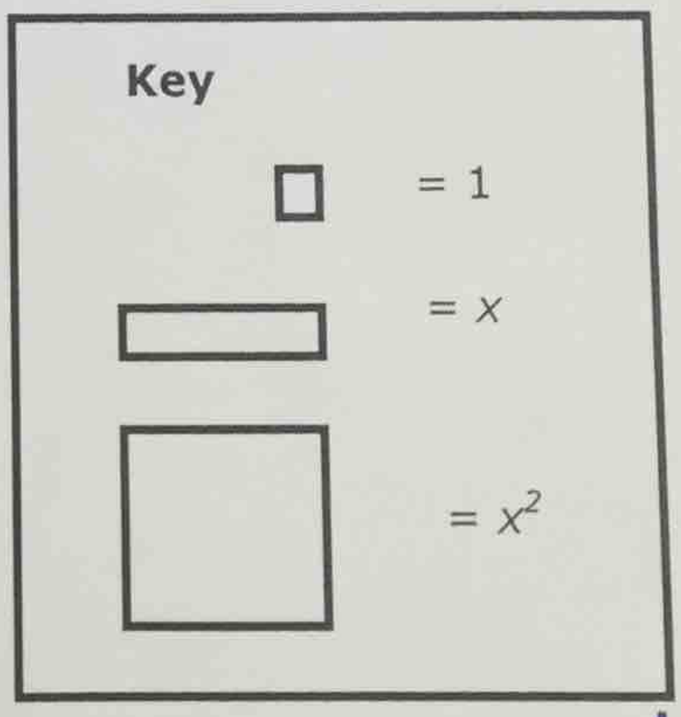
B. III only

C. III and IV

~~D.~~ II, III, and IV

14. A polynomial is modeled below using algebra tiles.





	2x	+4
x	$2x^2$	+4x
+3	+6x	+12

$2x^2 + 10x + 12$

The factored form in terms of x is

A. $(2x+4)(x+3)$

B. $(2x^2+4)(x+3)$

C. $(2x+3)(x+4)$

D. $(2x^2+3)(x+4)$