

Multiple Choice:

Write the letter of your choice in the space provided. 1 pt each.

1. B	2. A	3. C	4. A	5. B
6. D	7. A	8. C	9. B	10. C

Free Response:

Show all work for credit. Write your final answer in the space provided. 5 pts each unless otherwise indicated.

11. Factor out the GCF:

$$2x^5 - 4x^4 + 12x^3$$

$$2x^3(x^2 - 2x + 6)$$

12. Factor by Grouping

$$3mx - 2x + 15m - 10$$

$x$	$3mx$	$-2x$
$5$	$15m$	$-10$

Place in a box

$$(x+5)(3m-2)$$

13. Factor the quadratic trinomial:

$$x^2 - 6x + 5$$

$x$	$x^2$	$-1x$
$-5$	$-5x$	$5$

$5x^2 = -1, -5$

$$(x-5)(x-1)$$

14. Factor the quadratic trinomial:

$$2x^2 - 5x - 12$$

$x$	$2x^2$	$-8x$
$3$	$3x$	$-12$

$-24x^2 = -1, 24$   
 $-2, 12$   
 $-3, 8$   
 $-8, 3$

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

15. Factor the difference of squares:

$$25x^2 - 9$$

diff of squares

$$(5x-3)(5x+3)$$

16. Factor the perfect square trinomial:

$$25x^2 + 30x + 9$$

$$(5x+3)(5x+3) \text{ or } (5x+3)^2$$

17. Factor completely:

GCF:  $3x$

$$3x(2x^2 + 11x + 15)$$

$x$	$2x^2$	$5x$
$+3$	$6x$	$15$

$30x^2 = 5x \cdot 6x$

$$3x(2x+5)(x+3)$$

18. Factor completely:

GCF:  $2x$

$$2x(x^2 - 16)$$

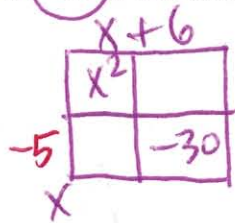
diff of squares

$$2x(x-4)(x+4)$$

Multiple Choice

B 1. The polynomial  $x^2 + x - 30$  is factorable. One factor is  $(x + 6)$ , what is the other factor?

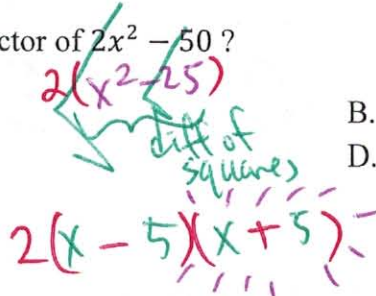
- A.  $(x + 1)$   
C.  $(x + 3)$



- B.  $(x - 5)$   
D.  $(x + 5)$

A 2. Which of the following is a factor of  $2x^2 - 50$ ?

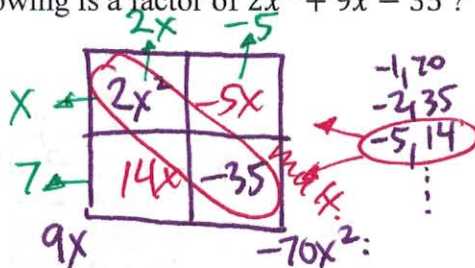
- A.  $(x + 5)$   
C.  $(x + 25)$



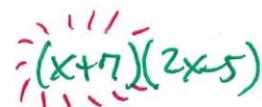
- B.  $(x - 10)$   
D.  $(x - 1)$

C 3. Which of the following is a factor of  $2x^2 + 9x - 35$ ?

- A.  $(x - 7)$   
C.  $(x + 7)$



- B.  $(x - 5)$   
D.  $(x + 5)$



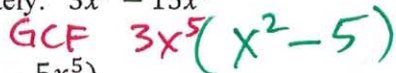
A 4. The expression  $x^2 + bx + c$  factors to the expression  $(x + p)(x + q)$  where  $b, c, p,$  and  $q$  represent non-zero rational numbers. If  $b > 0$  and  $c > 0$ , then which of the following statements is true?

- A. both  $p$  and  $q$  are positive  
B.  $p$  is positive and  $q$  is negative where  $|p| > |q|$   
C.  $p$  is positive and  $q$  is negative where  $|p| < |q|$   
D. both  $p$  and  $q$  are negative

positive positive

B 5. Factor completely:  $3x^7 - 15x^5$

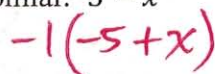
- A.  $3(x^7 - 5x^5)$   
C.  $x^5(3x^2 - 15)$



- B.  $3x^5(x^2 - 5)$   
D.  $3x^4(x^3 - 5x)$

D 6. Factor out -1 from the polynomial:  $5 - x$

- A.  $-1(x + 5)$   
C.  $-1(-x - 5)$

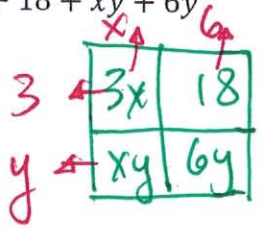


- B.  $-1(5 - x)$   
D.  $-1(-5 + x)$

Place in a box!

A 7. Factor completely:  $3x + 18 + xy + 6y$

- A.  $(x + 6)(3 + y)$
- C.  $(y + 6)(x + 3)$

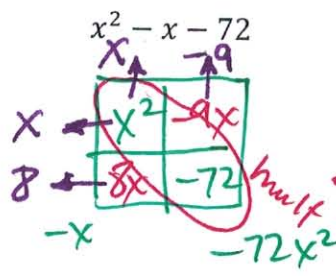


- B.  $(y + 6)(3x + y)$
- D.  $(x + 6y)(3 + y)$

$(x+6)(3+y)$

C 8. Factor the trinomial completely. If the polynomial cannot be factored, write "prime."

- A.  $(x - 8)(x + 9)$
- C.  $(x - 9)(x + 8)$



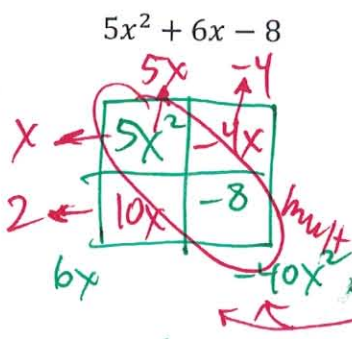
- B.  $(x - 8)(x - 9)$
- D. prime

-1	72	-6	12
-2	36	-8	9
-3	24	-9	8
-4	18		

$(x+8)(x-9)$

B 9. Factor the trinomial completely. If the polynomial cannot be factored, write "prime."

- A.  $(x - 4)(5x + 2)$
- C.  $(x - 2)(5x + 4)$



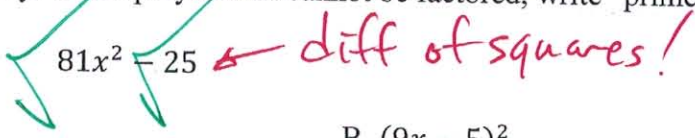
- B.  $(x + 2)(5x - 4)$
- D. prime

-1	40		
-2	20		
-4	10		

$(x+2)(5x-4)$

C 10. Factor the binomial completely. If the polynomial cannot be factored, write "prime."

- A.  $(9x + 5)^2$
- C.  $(9x + 5)(9x - 5)$



- B.  $(9x - 5)^2$
- D. prime

$(9x-5)(9x+5)$