

DO NOT TURN THIS PAGE UNTIL YOU ARE INSTRUCTED TO DO SO

- ❖ Write your name below on the space provided.
- ❖ This test has a total of 4 pages.
- ❖ Work the problem in the space provided. If you need more space, write on the back of the test. Be sure to label the test as to which problem is on the back.
- ❖ To insure maximum credit, show your work. In general, full credit will not be given for unsupported answers.
- ❖ Be sure to write neatly in pencil. If I cannot read what was written, do not expect the problem to be graded.
- ❖ If you finish early, go over the test again.

Good luck!

Number	Maximum	Score
1	2	
2	6	
3	6	
4	18	
5	32	
6	5	
7	19	
8	6	
9	6	
Total	100	

Name _____

**CIRCLE FINAL
ANSWERS**

1) (2 points) What does it mean to factor?

2) (3 points each) Find the GCF of the following:

a) s^5t^2, s^6t^4, s^3t^3

b) $36x^5y^3, 81x^2y^2, 45x^3y^6$

3) (3 points each) Factor out the GCF from the following:

a) $28x^4 + 32x^3 - 24x^2$

b) $4x^4y^4 - 16x^2y^6 - 12x^2y^4$

4) (3 points each) Factor completely:

a) $x^2 - 5x - 36$

b) $x^2 + 7x + 10$

c) $7x(x-7) + 8(x-7)$

d) $x^3 - 5x^2 + 4x - 20$

e) $3xy + 6x + y + 2$

f) $-x^2 + x + 20$

5) (4 points each) More factoring completely. Woo!

a) $x^4 + x^3 - 2x^2$

b) $3x^2 + x - 10$

c) $-4s^2t^3 - 30s^2t^2 - 36s^2t$

d) $8x^3 + 8$

e) $x^4 - 16$

f) $14x^3 - 350x$

g) $x^4 - 20x^2 + 64$

h) $16x^3 - 16x^2 - 12x$

6) (1 point each) Match the factored form to the expanded form:

_____ $(a + b)^2$

A: $a^2 + 2ab + b^2$

_____ $(a - b)^2$

B: $a^3 - b^3$

_____ $(a + b)(a - b)$

C: $a^2 - 2ab + b^2$

_____ $(a + b)(a^2 - ab + b^2)$

D: $a^2 - b^2$

_____ $(a - b)(a^2 + ab + b^2)$

E: $a^3 + b^3$

7) (4 points part *a*, 5 points parts *b – d*) Solve the following equations for the variable:

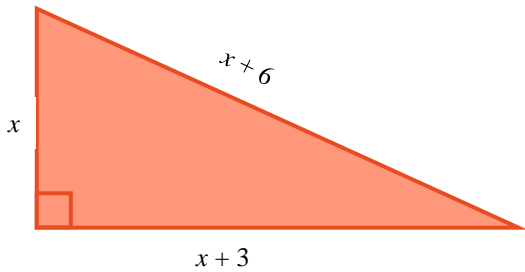
a) $(7x - 2)(5x + 4) = 0$

b) $x^2 + 6x + 5 = 0$

c) $12x^2 - 17x - 5 = 0$

d) $15x^3 + 35x^2 + 10x = 0$

8) (6 points) Find the lengths of all three sides of the right triangle shown below:



9) (6 points) On the newest true-love reality TV show *I Would Dye for You*, contestants jump from higher and higher places into a vat of paint all to win the love of a stranger and for our entertainment. Martin calculates that the distance he is off the ground can be approximated by the function $h(t) = -16t^2 + 104t + 56$ where t is time in seconds and h is height in feet. At what time will Martin (hopefully) land in the vat of paint?