

Unit 8 Practice Test

(All polynomial answers should be in descending order)

Name _____

Date _____ Per _____

Write in standard form:

What is the degree of each polynomial:

1. $7 - 4x^2 - 5x$

2. $14x^6y^4z$

3. $-3b^4 + 4b^3 - 5b^2 + b$

Name each polynomial based on its degree and number of terms.

4. $2x - 3$

5. $x^2 + 2x - 5$

6. $7x^3$

Add or Subtract.

7. $(2a^2 - 4a + 6) + (3a^2 + 2a - 8)$

8. $(3x^3 + 2x^2 - 5) + (-x^2 + 8x - 7)$

9. $(-9x^2 + 3x - 5) - (-2x^2 - 4x + 3)$

10. $(x^4 + 2x + 9) - (10x^2 - 4x - 2)$

Multiply:

11. $-2(x + 12)$

12. $3n^3(5n^2 + 4n - 6)$

13. $(x + 7)(x - 3)$

14. $(x - 5)(x - 4)$

15. $(2x + 3)(8x - 4)$

16. $(n + 6)(n - 6)$

17. $(x + 3)^2$

18. $(a - 3)(a^2 + 6a - 8)$

Factor:

19. $21x^5 - 35x^3$

20. $x^2 + 8x + 15$

21. $n^2 + 2n - 8$

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.

Continue Factoring:

22. $x^2 - 49$

23. $9x^2 - 16$

24. $x^2 - 16x + 64$

25. $w^2 + 12w + 36$

26. $4a^2 - 20a + 25$

27. $3y^2 + 11y + 10$

For #'s 28-30 be sure to factor completely!

(*hint: in other words, pull a GCF out First!!!*)

28. $2m^2 - 18m + 40$

29. $6s^2 - 6$

30. $5x^2 + 30x + 45$

Factor by grouping:

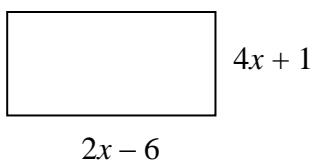
31. $k^3 - 3k^2 + 5k - 15$

32. $6m^3 + 8m^2 + 3m + 4$

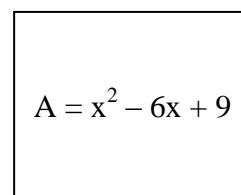
33. $27x^3 + 45x^2 - 9x - 15$

Area Problems:

34. What is the area of the rectangle below?



35. If the area of a square is $x^2 - 6x + 9$, how long is just one side of the square?



Just one side is _____

22.
23.
24.
25.
26.
27.
28.
29.
30.
31.
32.
33.
34.
35.

Unit 8 Practice Test

(All polynomial answers should be in descending order)

Name _____

Key

Date _____

Per _____

Write in standard form:

What is the degree of each polynomial:

1. $7 - 4x^2 - 5x$

$-4x^2 - 5x + 7$

3. $-3b^4 + 4b^3 - 5b^2 + b$
 $d=4$ $d=3$ $d=2$ $d=1$ *Choose the highest only

Name each polynomial based on its degree and number of terms.

5. $x^2 + 2x - 5$

Add or Subtract. *Don't change exponents when adding!

7. $(2a^2 - 4a + 6) + (3a^2 + 2a - 8)$

$5a^2 - 2a - 2$

9. $(-9x^2 + 3x - 5) - (-2x^2 - 4x + 3)$
 $+2x^2 + 4x - 3$

$-7x^2 + 7x - 8$

Multiply:

11. $-2(x + 12)$

$-2x - 24$

13. $(x + 7)(x - 3)$

$x^2 - 3x + 7x - 21$
 $x^2 + 4x - 21$

15. $(2x + 3)(8x - 4)$

$16x^2 - 8x + 24x - 12$

$16x^2 + 16x - 12$

17. $(x + 3)^2$

$(x + 3)(x + 3)$

$x^2 + 3x + 3x + 9$

$x^2 + 6x + 9$

Factor:

19. $\frac{21x^5}{7x^3} - \frac{35x^3}{7x^3}$

$7x^3(3x^2 - 5)$

21. $n^2 + 2n - 8$

$(n + 4)(n - 2)$

$\frac{-8}{4} = -2$

1. $-4x^2 - 5x + 7$

3. degree = 4

5. quadratic trinomial

7. $5a^2 - 2a - 2$

9. $-7x^2 + 7x - 8$

11. $-2x - 24$

13. $x^2 + 4x - 21$

15. $16x^2 + 16x - 12$

17. $x^2 + 6x + 9$

19. $7x^3(3x^2 - 5)$

21. $(n + 4)(n - 2)$

Continue Factoring:

23. $9x^2 - 16$

$(3x+4)(3x-4)$
"Diff. of Sq."

25. $w^2 + 12w + 36$

$\frac{36}{12} \quad (x+6)(x+6)$
 $\frac{6}{12} \quad (x+6)^2$
"Perfect Square Trinomial"

For #'s 28-30 be sure to factor completely!

(hint: in other words, pull a GCF out First!!!)

29. $\frac{6s^2 - 6}{6 \quad 6}$

$6(s^2 - 1)$
 $6(s+1)(s-1)$

27. $3y^2 + 11y + 10$

$\frac{30}{11} \quad \frac{3y^2 + 6y}{3y} \quad \frac{5y + 10}{5}$
 $3y(y+2) \quad 5(y+2)$
 $(3y+5)(y+2)$

23.

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

25.

$(x+6)^2$

27.

$(3y+5)(y+2)$

29.

$6(s+1)(s-1)$

31.

$(k^2+5)(k-3)$

33.

$3(3x^2-1)(3x+5)$

35.

$(x-3)$

Factor by grouping:

31. $\frac{k^3 - 3k^2}{k^2 \quad k^2} \quad \frac{5k - 15}{5 \quad 5}$

$k^2(k-3) \quad 5(k-3)$
 $(k^2+5)(k-3)$

33. $\frac{27x^3}{3} + \frac{45x^2}{3} - \frac{9x}{3} - \frac{15}{3} \leftarrow \text{GCF } \frac{1}{3}!$

$3 \left(\frac{9x^3 + 15x^2}{3x^2} - \frac{3x - 5}{-1} \right)$
 $3x^2(3x+5) \quad -1(3x+5)$
 $3(3x^2-1)(3x+5)$

Area Problems:

35. If the area of a square is $x^2 - 6x + 9$,
how long is just one side of the square?

$A = x^2 - 6x + 9$

Just one side is $(x-3)$

$x^2 - 6x + 9$
 $\frac{9}{-3} \quad \frac{-6}{-6} \quad (x-3)(x-3)$
 $A = b \cdot h$

* Don't write $(x-3)^2$
for just one side.