

Name _____
Alg1 Q1 Test 2 Review

Test: Wednesday, October 30, 2019
Due: Tuesday, October 29, 2019

Part I: Factor each problem using the GCF and check by distributing:

1) $90x^9 - 72x^7 + 18x^5$

2) $45x^4y - 54x^3y^2 + 99x^2y^3 - 27xy$

3) $105x^6 - 75x^5 - 30x^4$

4) $80x^5y^2 - 64x^4y^3 + 32x^2y^4 - 16xy^5$

Rewrite each of the following expressions as the product of two binomials by factoring out a common binomial factor.

5) $(x + 9)(x - 6) + (x + 9)(2x + 11)$

6) $(4x - 1)(3x + 7) - (4x - 1)(5x - 3)$

7) $(8x + 3)(5x + 7) - (2x - 9)(8x + 3)$

8) $4x(x - 10) + 9(x - 10)$

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9.) The area of a rectangle is represented by the polynomial $28x^2 + 42x$. The width of the rectangle is given by the binomial $2x + 3$.

(a) Find a monomial expression in terms of x for the length of the rectangle. Show how you arrived at your answer.

(b) If the length of the rectangle is 84, what is the width of the rectangle? Explain your thinking.

10.) The area of a rectangle is represented by the polynomial $36x^2 + 84x$. The width of the rectangle is given by the binomial $3x + 7$.

(a) Find a monomial expression in terms of x for the length of the rectangle. Show how you arrived at your answer.

(b) If the length of the rectangle is 108, what is the width of the rectangle? Explain your thinking.

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11.) The area of a rectangle is represented by the polynomial $110x^2 + 44x$. The width of the rectangle is given by the binomial $5x + 2$.

(a) Find a monomial expression in terms of x for the length of the rectangle. Show how you arrived at your answer.

(b) If the length of the rectangle is 132, what is the perimeter of the rectangle? Explain your thinking.

12.) The area of a rectangle is represented by the polynomial $64x^2 - 16x$. The width of the rectangle is given by the binomial $4x - 1$.

(a) Find a monomial expression in terms of x for the length of the rectangle. Show how you arrived at your answer.

(b) If the length of the rectangle is 112, what is the area of the rectangle? Explain your thinking.

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Part II: Factor each quadratic completely:

1) $x^2 + 5x + 4$

2) $a^2 - 12a + 35$

3) $f^2 - 3f - 18$

4) $g^2 + 5g - 50$

5) $t^2 - 2t - 48$

6) $x^2 - 100$

7) $s^2 - 9s + 20$

8) $j^2 + 7j + 12$

9) $k^2 + 2k - 24$

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$$10) x^2 - 6x - 7$$

$$11) n^2 - 25$$

$$12) c^2 - 13c + 40$$

$$13) g^2 - 5g - 84$$

$$14) z^2 + 17z + 72$$

$$15) q^2 - 3q - 18$$

$$16) p^2 - 81$$

$$17) w^2 - w - 132$$

$$18) x^2 + 13x - 48$$

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$$19) z^2 + 9z - 36$$

$$20) h^2 + 12h + 36$$

$$21) r^2 + 5r - 36$$

$$22) b^2 - 5b - 36$$

$$23) x^2 - 36$$

$$24) m^2 - 20m + 36$$

$$25) y^2 - 4y - 60$$

$$26) v^2 + 17v - 60$$

$$27) r^2 + 7r - 60$$

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28) $x^2 + 61x + 60$

29) $g^2 - 23g + 60$

30) $b^2 - 121$

31) $a^2 + 4a - 96$

32) $y^2 - y - 110$

33) $x^2 + x - 90$

37) $5x^2 + 10x - 120$

38) $3w^2 - 33w + 90$

39) $8t^2 - 32t - 256$

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$$40) 6d^2 + 60d + 150$$

$$41) 9x^2 - 36$$

$$42) 10z^2 + 50z - 240$$

$$43) 7f^2 + 84f + 252$$

$$44) 2x^2 - 2x - 180$$

$$45) 4s^2 - 144$$

$$46) 5g^2 - 245$$

$$47) 9k^2 - 99k + 252$$

$$48) 25k^2 - 225$$

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49) $2x^2 - 7x - 30$

50) $12s^2 + 19s + 4$

51) $18c^2 + 9c - 2$

52) $18y^2 + 19y + 5$

53) $15f^2 - 14f + 3$

54) $15k^2 + 7k - 8$

55) $12s^2 - 22s - 20$

56) $24d^2 - 6d - 30$

57) $21w^2 + 93w + 36$

58) $40x^2 + 205x + 25$

59) $100z^2 + 10z - 20$

60) $24r^2 - 90r + 21$

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Factor Completely:

61) $6x^2 - 19x + 15$

62) $18x^2 + 11x - 7$

63) $8x^2 + 10x + 3$

64) $7x^2 + 25x - 12$

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65) $2x^2 - x - 36$

66) $20x^2 + x - 1$

67) $6x^2 - 13x + 6$

68) $21x^2 + 13x + 2$

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Answer Key

Part I:

- 1) $18x^5(5x^4 - 4x^2 + 1)$
4) $15x^4(7x^2 - 5x - 2)$
5) $(x+9)(3x+5)$
9) $l = 14x$
 $x = 6$
 $w = 15$
- 2) $9xy(5x^3 - 6x^2y + 11xy^2 - 3)$
4) $16xy^2(5x^4 - 4x^3y + 2xy^2 - y^3)$
6) $(4x-1)(-2x+10)$
10) $l = 12x$
 $x = 9$
 $w = 34$
- 7) $(8x+3)(3x+16)$
11) $l = 22x$
 $x = 6$
 $w = 32$
 $P = 308$
- 8) $(x-10)(4x+9)$
12) $l = 16x$
 $x = 7$
 $w = 27$
 $A = 3,024$

Part II:

- 1) $x^2 + 5x + 4 (x+4)(x+1)$
4) $g^2 + 5g - 50 (g+10)(g-5)$
7) $s^2 - 9s + 20 (s-4)(s-5)$
10) $x^2 - 6x - 7 (x-7)(x+1)$
13) $g^2 - 5g - 84 (g-12)(g+7)$
16) $p^2 - 81 (p+9)(p-9)$
19) $z^2 + 9z - 36 (z+12)(z-3)$
22) $b^2 - 5b - 36 (b-9)(b+4)$
25) $y^2 - 4y - 60 (y-10)(y+6)$
28) $x^2 + 61x + 60 (x+60)(x+1)$
31) $a^2 + 4a - 96 (a+12)(a-8)$
34) $t^2 + 21t + 108 (t+9)(t+12)$
37) $5x^2 + 10x - 120 5(x+6)(x-4)$
40) $6d^2 + 60d + 150 6(d+5)(d+5)$
43) $7f^2 + 84f + 252 7(f+6)(f+6)$
46) $5g^2 - 245 5(g+7)(g-7)$
49) $2x^2 - 7x - 30 (x-6)(2x+5)$
52) $18y^2 + 19y + 5 (2y+1)(9y+5)$
55) $12s^2 - 22s - 20 2(2s-5)(3s+2)$
58) $40x^2 + 205x + 25 5(x+5)(8x+1)$
- 2) $a^2 - 12a + 35 (a-7)(a-5)$
5) $t^2 - 2t - 48 (t+6)(t-8)$
8) $j^2 + 7j + 12 (j+3)(j+4)$
11) $n^2 - 25 (n+5)(n-5)$
14) $z^2 + 17z + 72 (z+9)(z+8)$
17) $w^2 - w - 132 (w-12)(w+11)$
20) $h^2 + 12h + 36 (h+6)(h+6)$
23) $x^2 - 36 (x+6)(x-6)$
26) $v^2 + 17v - 60 (v+20)(v-3)$
29) $g^2 - 23g + 60 (g-20)(g-3)$
32) $y^2 - y - 110 (y+10)(y-11)$
35) $w^2 - 64 (w-8)(w+8)$
38) $3w^2 - 33w + 90 3(w-5)(w-6)$
41) $9x^2 - 36 9(x+2)(x-2)$
44) $2x^2 - 2x - 180 2(x-10)(x+9)$
47) $9k^2 - 99k + 252 9(k-7)(k-4)$
50) $12s^2 + 19s + 4 (3s+4)(4s+1)$
53) $15f^2 - 14f + 3 (5f-3)(3f-1)$
56) $24d^2 - 6d - 30 6(4d-5)(d+1)$
59) $100z^2 + 10z - 20 10(2z+1)(5z-2)$
- 3) $f^2 - 3f - 18 (f+3)(f-6)$
6) $x^2 - 100 (x+10)(x-10)$
9) $k^2 + 2k - 24 (k+6)(k-4)$
12) $c^2 - 13c + 40 (c-8)(c-5)$
15) $q^2 - 3q - 18 (q+3)(q-6)$
18) $x^2 + 13x - 48 (x+16)(x-3)$
21) $r^2 + 5r - 36 (r+9)(r-4)$
24) $m^2 - 20m + 36 (m-18)(m-2)$
27) $r^2 + 7r - 60 (r+12)(r-5)$
30) $b^2 - 121 (b+11)(b-11)$
33) $x^2 + x - 90 (x+10)(x-9)$
36) $x^2 - 14x + 49 (x-7)(x-7)$
39) $8t^2 - 32t - 256 8(t-8)(t+4)$
42) $10z^2 + 50z - 240 10(z+8)(z-3)$
45) $4s^2 - 144 4(s+6)(s-6)$
48) $25k^2 - 225 25(k+3)(k-3)$
51) $18c^2 + 9c - 2 (3c+2)(6c-1)$
54) $15k^2 + 7k - 8 (k+1)((15k-8)$
57) $21w^2 + 93w + 36 3(w-4)(7w-3)$
60) $24r^2 - 90r + 21 3(2r-7)(4r-1)$
- 61) $6x^2 - 19x + 15 (3x-5)(2x-3)$
63) $8x^2 + 10x + 3 (4x+3)(2x+1)$
65) $2x^2 - x - 36 (2x-9)(x+4)$
67) $6x^2 - 13x + 6 (3x-2)(2x-3)$
- 62) $18x^2 + 11x - 7 (18x-7)(x+1)$
64) $7x^2 + 25x - 12 (7x-3)(x+4)$
66) $20x^2 + x - 1 (4x+1)(5x-1)$
68) $21x^2 + 13x + 2 (7x+2)((3x+1)$

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