

Practice 4.2 Part 1 ~ Factoring Complex Quadratic Expressions

Factor each completely.

1) $0.2r^2 - 2.2r + 5.6$

$$= 0.2(r^2 - 11r + 28)$$

$$= \boxed{0.2(r-4)(r-7)}$$

2) $0.4d^2 + 0.6d - 1.8$

$$= 0.1(4d^2 + 6d - 18)$$

$$= \underbrace{0.1}_{\substack{18 \\ 9 \\ 6}}(2(2d^2 + 3d - 9))$$

$$= 0.2(2d^2 + 6d - 3d - 9)$$

$$= 0.2(2d(d+3) - 3(d+3))$$

$$= \boxed{0.2(d+3)(2d-3)}$$

3) $0.49n^2 - 0.81$

$$= \boxed{(0.7n+0.9)(0.7n-0.9)}$$

OR

$$= 0.01(49n^2 - 81)$$

$$= \boxed{0.01(7n+9)(7n-9)}$$

4) $\frac{1}{4}k^2 - \frac{9}{16}j^2$

$$= \boxed{\left(\frac{1}{2}k + \frac{3}{4}j\right)\left(\frac{1}{2}k - \frac{3}{4}j\right)}$$

5) $\frac{1}{4}x^2 + 2x + 3$

$$= \frac{1}{4}(x^2 + 8x + 12)$$

$$= \boxed{\frac{1}{4}(x+2)(x+6)}$$

6) $\frac{64}{121}a^2 - 36b^2$

$$= \boxed{\left(\frac{8}{11}a + 6b\right)\left(\frac{8}{11}a - 6b\right)}$$

7) $(r+3)^2 - 6(r+3) + 5$ $r+3 = x$

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

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

$$= (r+3-1)(r+3-5)$$

$$= \boxed{(r+2)(r-2)}$$

8) $(c-9)^2 - 10(c-9) + 16$ $c-9 = x$

$$= x^2 - 10x + 16$$

$$= (x-2)(x-8)$$

$$= (c-9-2)(c-9-8)$$

$$= \boxed{(c-11)(c-17)}$$

