8A CC Unit 13 Extra Practice (Factoring) ANSWER KEY

Factor Completely

1. $2a^2 - 2b^2$	2. $4x^3 - 4x^2$	3. $ax^2 - ay^2$	4. st ² – 9s
$2(a^2 - b^2)$	$4x^{2}(x-1)$	$a(x^2 - y^2)$	s(t ² - 9)
2(a + b)(a – b)	x – 1 cannot be factored further. It is a prime polynomial.	a(x + y)(x – y)	s(t + 3)(t – 3)
5. 2x ² – 32	6. $3x^2 - 27y^2$	7. $3x^2 + 6x + 3$	8. a ⁴ – 16
2(x ² -16)	$3(x^2 - 9y^2)$	$3(x^2 + 2x + 1)$	$(a^2 - 4)(a^2 + 4)$
2(x+4)(x-4)	3(x +3 y)(x – 3y)	3(x + 1)(x + 1)	(a + 2)(a – 2)(a ² + 4)
9. $x^3 - 49x$	10. $x^3 + 5x^2 + 10x$	11. $\pi c^2 - \pi d^2$	12. 4ax ² + 8ax – 60a
x(x ² - 49)	x(x ² + 5x + 10)	π (c ² – d ²)	4a(x ² + 2x - 15)
x(x - 7)(x + 7)	$x^2 + 5x + 10$ cannot be factored further. It is a prime polynomial.	π (c + d)(c – d)	4a(x + 5)(x - 3)
	A pair of integers whose product is 10 and sum 5 do not exist.	S	
13. $4r^2 - 4r - 48$	14. 63c ² – 7	15. $d^3 - 8d^2 + 16d$	16. $x^4 + 2x^2 - 24$
$4(r^2 - r - 12)$	$7(9c^2 - 1)$	d(d ² – 8d + 16)	$(x^2 + 6)(x^2 - 4)$
4(r + 3)(r - 4)	7(3c – 1)(3c + 1)	d(d – 4)(d – 4)	$(x^{2}+6)(x-2)(x+2)$
17. $4x^5 - 64x$	18. x ² + 9	19. $x^4 - 13x^2 + 36$	*20. 3x ² + 5x + 2
$4x(x^4 - 16)$	x ² + 9 is a prime polynomial. It cannot be factored. This <u>not</u>	$(x^2 - 9)(x^2 - 4)$	(3x + 2)(x + 1)
$4x(x^2+4)(x^2-4)$	a difference of two perfect squares. It is a sum.	(x-3)(x+3)(x-2)(x+2)	Use trial and error. (3x + ?)(x + ?)

 $4x(x^{2}+4)(x+2)(x-2)$