SM2 5.2: Factoring By Grouping

Name_____

Date_____ Period_____

Factor each completely.

1) $48x^3 + 18x^2 + 8x + 3$

$$(6x^2 + 1)(8x + 3)$$

2) $40v^3 - 48v^2 + 15v - 18$

$$(8v^2 + 3)(5v - 6)$$

3) $35n^3 - 21n^2 + 40n - 24$

$$(7n^2 + 8)(5n - 3)$$

4) $v^3 - 6v^2 + 3v - 18$

$$(v^2 + 3)(v - 6)$$

5) $56k^3 - 40k^2 + 21k - 15$

$$(8k^2 + 3)(7k - 5)$$

6) $14b^3 + 35b^2 + 16b + 40$

$$(7b^2 + 8)(2b + 5)$$

7) $3n^3 - 5n^2 + 3n - 5$

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

8) $8n^3 - 28n^2 + 14n - 49$

$$(4n^2 + 7)(2n - 7)$$

9) $3p^3 + 12p^2 + p + 4$

$$(3p^2 + 1)(p + 4)$$

10) $48k^3 - 6k^2 + 56k - 7$

$$(6k^2 + 7)(8k - 1)$$

11) $7n^3 + 42n^2 - 5n - 30$

$$(7n^2 - 5)(n + 6)$$

12) $2v^3 + 3v^2 + 16v + 24$

$$(v^2 + 8)(2v + 3)$$

13) $2n^3 + 7n^2 + 14n + 49$

$$(n^2 + 7)(2n + 7)$$

14) $9v^3 + 3v^2 - 6v - 2$

$$(3v^2 - 2)(3v + 1)$$

15) $21x^3 - 49x^2 + 9x - 21$

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

16) $3a^3 + 15a^2 - a - 5$

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

17) $35au - 5av - 14bu + 2bv$

$$(5a - 2b)(7u - v)$$

18) $7xy - 8x + 7y^3 - 8y^2$

$$(x + y^2)(7y - 8)$$

19) $49xy + 35x + 7y + 5$

$$(7x + 1)(7y + 5)$$

20) $15mn + 3mv + 20vn + 4v^2$

$$(3m + 4v)(5n + v)$$