

Factoring Lab

Name:

Instructions: Factor each of the polynomials given on a separate sheet of paper (show your work) and then evaluate each factor for $x = 1$. The two values you obtain should then be exchanged for the letters of the alphabet from the following code table and then placed in the blanks provided for that problem. For example, $x^2 + 3x + 2 = (x + 2)(x + 1)$, $1 + 2 = 3$ and $1 + 1 = 2$, so the two letters are M and N. Fill in the table on the following page to assist you. The first one is done for you. *Note:* Problems 11, 13 and 22 have 3 blanks and 3 factors.

- | | | | |
|--------------------------|-------------------------|-----------------------|-----------------------|
| 1. $x^2 - 9x - 22$ | 12. $x^2 + 7x - 44$ | 23. $x^2 + 9x + 14$ | 34. $x^2 + x - 56$ |
| 2. $x^2 + 14x + 13$ | 13. $x^3 - 10x^2 + 21x$ | 24. $4x^2 + 17x + 15$ | 35. $2x^2 + 11x + 14$ |
| 3. $3x^2 - 7x - 26$ | 14. $5x^2 - 12x + 7$ | 25. $x^2 - 8x + 15$ | 36. $x^2 - 9$ |
| 4. $x^2 + 7x - 44$ | 15. $x^2 + 14x + 49$ | 26. $x^2 + 7x - 30$ | 37. $x^2 - x - 6$ |
| 5. $x^2 - 6x - 27$ | 16. $x^2 - x - 6$ | 27. $6x^2 - 11x - 7$ | 38. $x^2 - 64$ |
| 6. $x^2 - 9x - 22$ | 17. $x^2 - 16x + 55$ | 28. $x^2 + 4x - 32$ | 39. $x^2 - 49$ |
| 7. $2x^2 - 11x - 40$ | 18. $x^2 + 10x + 24$ | 29. $x^2 - 8x + 7$ | 40. $x^2 - x - 42$ |
| 8. $x^2 + 7x - 30$ | 19. $2x^2 - 7x - 49$ | 30. $x^2 + 4x - 21$ | 41. $x^2 + 3x - 70$ |
| 9. $x^2 - 49$ | 20. $x^2 + 21x + 104$ | 31. $2x^2 + 21x + 49$ | 42. $-3x^2 + 11$ |
| 10. $x^2 - 17x + 66$ | 21. $x^2 - 8x + 15$ | 32. $x^2 - 11x + 28$ | |
| 11. $3x^3 - 10x^2 - 77x$ | 22. $x^3 + 3x^2 - 18x$ | 33. $x^2 - 3x - 88$ | |

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

<u>1</u>	<u>1</u>	<u>2</u>		<u>2</u>	<u>3</u>	<u>3</u>		<u>4</u>	<u>4</u>	<u>5</u>		<u>5</u>	<u>6</u>	<u>6</u>
<u>7</u>	<u>7</u>	<u>8</u>	<u>8</u>	<u>9</u>		<u>9</u>	<u>10</u>	<u>10</u>	<u>11</u>	<u>11</u>	<u>11</u>			
<u>12</u>	<u>12</u>	<u>13</u>	<u>13</u>	<u>13</u>			<u>14</u>	<u>14</u>	<u>15</u>	<u>15</u>	<u>16</u>	<u>16</u>	<u>17</u>	
<u>17</u>		<u>18</u>	<u>18</u>	<u>19</u>	<u>19</u>	<u>20</u>	<u>20</u>		<u>21</u>	<u>21</u>	<u>22</u>	<u>22</u>		
<u>22</u>	<u>23</u>		<u>23</u>	<u>24</u>	<u>24</u>		<u>25</u>	<u>25</u>	<u>26</u>	<u>26</u>	<u>27</u>	<u>27</u>		
<u>28</u>	<u>28</u>	<u>29</u>		<u>29</u>	<u>30</u>	<u>30</u>	<u>31</u>		<u>31</u>	<u>32</u>	<u>32</u>			
<u>33</u>	<u>33</u>	<u>34</u>	<u>34</u>	<u>35</u>	<u>35</u>	<u>36</u>	<u>36</u>	<u>37</u>		<u>37</u>	<u>38</u>			
<u>38</u>	<u>39</u>	<u>39</u>	<u>40</u>	<u>40</u>	<u>41</u>	<u>41</u>	<u>42</u>	.						

— Albert Einstein

Polynomial	Factors	Numbers	Letters
1. $x^2 - 9x - 22$	$(x - 11)(x + 2)$	$1 - 11 = -10$, $1 + 2 = 3$	A, N
2. $x^2 + 14x + 13$			
3. $3x^2 - 7x - 26$			
4. $x^2 + 7x - 44$			
5. $x^2 - 6x - 27$			
6. $x^2 - 9x - 22$			
7. $2x^2 - 11x - 40$			
8. $x^2 + 7x - 30$			
9. $x^2 - 49$			
10. $x^2 - 17x + 66$			
11. $3x^3 - 10x^2 - 77x$			
12. $x^2 + 7x - 44$			
13. $x^3 - 10x^2 + 21x$			
14. $5x^2 - 12x + 7$			
15. $x^2 + 14x + 49$			
16. $x^2 - x - 6$			
17. $x^2 - 16x + 55$			
18. $x^2 + 10x + 24$			
19. $2x^2 - 7x - 49$			
20. $x^2 + 21x + 104$			
21. $x^2 - 8x + 15$			

22. $x^3 + 3x^2 - 18x$			
23. $x^2 + 9x + 14$			
24. $4x^2 + 17x + 15$			
25. $x^2 - 8x + 15$			
26. $x^2 + 7x - 30$			
27. $6x^2 - 11x - 7$			
28. $x^2 + 4x - 32$			
29. $x^2 - 8x + 7$			
30. $x^2 + 4x - 21$			
31. $2x^2 + 21x + 49$			
32. $x^2 - 11x + 28$			
33. $x^2 - 3x - 88$			
34. $x^2 + x - 56$			
35. $2x^2 + 11x + 14$			
36. $x^2 - 9$			
37. $x^2 - x - 6$			
38. $x^2 - 64$			
39. $x^2 - 49$			
40. $x^2 - x - 42$			
41. $x^2 + 3x - 70$			
42. $-3x^2 + 11$			