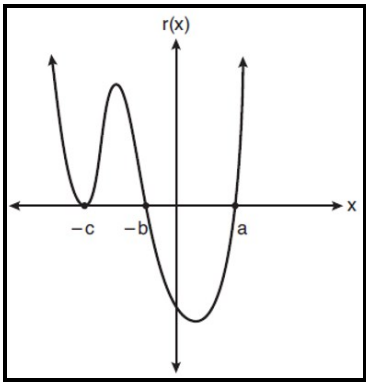
Name: _____
Teacher: Lee

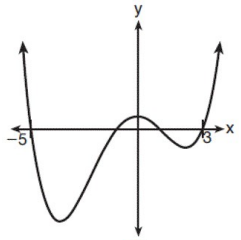
1. A sketch of $r(x)$ is shown below.

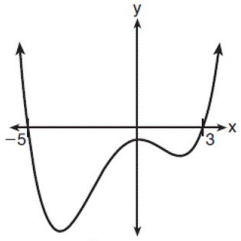


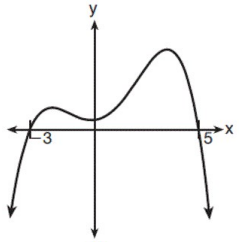
An equation for $r(x)$ could be

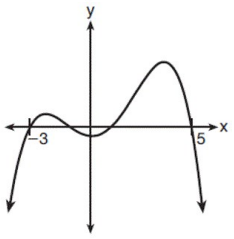
1. $r(x) = (x - a)(x + b)(x + c)$
2. $r(x) = (x + a)(x - b)(x - c)^2$
3. $r(x) = (x + a)(x - b)(x - c)$
4. $r(x) = (x - a)(x + b)(x + c)^2$

2. A 4th degree polynomial has zeros −5, 3, i, and $-i$. Which graph could represent the function defined by this polynomial?

1.


2.


3.


4.


3. If $x - 1$ is a factor of $x^3 - kx^2 + 2x$, what is the value of k?

1. 0 2. 2
3. 3 4. −3

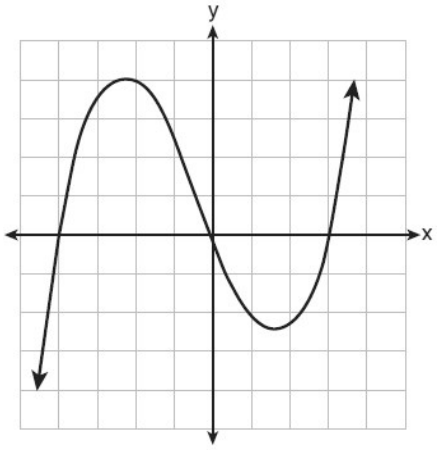
4. If $p(x) = x^4 + 2x^3 - 7x^2 - 8x + 12$, what is the remainder of $p(x) \div (x - 4)$?

1. 0 2. 12
3. 60 4. 252

5. If $p(x) = x^3 - 6x^2 + 3x + 10$, what is the remainder of $p(x) \div (x - 5)$?

1. −280 2. −80
3. 0 4. 8

6. The graph of $p(x)$ is shown below.



What is the remainder when $p(x)$ is divided by $x + 4$?

1. $x - 4$
2. -4
3. 0
4. 4

7. The expression $\frac{x^3 + 2x^2 + x + 6}{x + 2}$ is equivalent to

1. $x^2 + 3$
2. $x^2 + 1 + \frac{4}{x+2}$
3. $2x^2 + x + 6$
4. $2x^2 + 1 + \frac{4}{x+2}$