Factoring Practice

Unlimited Practice for Polynomial Factoring.

NOTE: These are all randomized problems. As a result, it is entirely possible to get pretty awful numbers if you are suitably unlucky. Some of these may look bad until you start doing them, but if you see problems that look excessively awful, remember that you can always hit the 'Another' button in the top (green refresh arrow) to get new numbers. If you find yourself doing this frequently, you may want to discuss it with your TA to see if you have a gap in your understanding, or to see if the problems are just really that bad (in which case the TA will forward the info to the content authors).

Problem 1 *Factor the following quadratic using the 'factoring coefficients method'.*

$$p(x) = x^2 - x - 20$$

What are the factors of $p(x)$? (put them in order of smallest to largest coefficient)

$$p(x) = (x + \boxed{-5})(x + \boxed{4})$$

What are the zeros of $p(x)$? (List from (smallest / most negative) to (largest / most positive)) $\boxed{-4}$, $\boxed{5}$

What are the x-intercepts of $p(x)$ (List from left to right) ($\boxed{-4}$, $\boxed{0}$), ($\boxed{5}$, $\boxed{0}$)

What is the y-intercept of $p(x)$? ($\boxed{0}$, $\boxed{-20}$).

Problem 2 *Factor the following quadratic using the 'factoring coefficients method'.*

$$p(x) = x^2 - 6x - 40$$

What are the factors of $p(x)$? (put them in order of smallest to largest coefficient)

$$p(x) = (x + \boxed{-10})(x + \boxed{4})$$

What are the zeros of $p(x)$? (List from (smallest / most negative) to (largest / most positive)) $\boxed{-4}$, $\boxed{10}$

What are the x-intercepts of $p(x)$ (List from left to right) ($\boxed{-4}$, $\boxed{0}$), ($\boxed{10}$, $\boxed{0}$)

What is the y-intercept of $p(x)$? ($\boxed{0}$, $\boxed{-40}$).

Problem 3 *Factor the following quadratic using the 'factoring coefficients method'.*

$$p(x) = x^2 + 4x - 5$$

What are the factors of $p(x)$? (put them in order of smallest to largest coefficient)

$$p(x) = (x + \boxed{-1})(x + \boxed{5})$$

What are the zeros of $p(x)$? (List from (smallest / most negative) to (largest / most positive)) $\boxed{-5}$, $\boxed{1}$

What are the x-intercepts of $p(x)$ (List from left to right) ($\boxed{-5}$, $\boxed{0}$), ($\boxed{1}$, $\boxed{0}$)

What is the y-intercept of $p(x)$? ($\boxed{0}$, $\boxed{-5}$).

Learning outcomes:

Problem 4 *Factor the following quadratic (Hint: The AC method is appropriate here)*

$$p(x) = 14\,x^2 + 10\,x$$

Write the factored form of $p(x)$: (Put them in order of smallest to largest coefficient of x)

$$p(x) = (\boxed{-7\,x - 5})(\boxed{-2\,x})$$

What are the zeros of $p(x)$? (List from (smallest / most negative) to (largest / most positive)) $\boxed{-\dfrac{5}{7}}$, $\boxed{0}$

What are the x-intercepts of $p(x)$ (List from left to right) $(\boxed{-\dfrac{5}{7}}, \boxed{0})$, $(\boxed{0}, \boxed{0})$

What is the y-intercept of $p(x)$? $(\boxed{0}, \boxed{0})$.

Problem 5 *Factor the following quadratic (Hint: The AC method is appropriate here)*

$$p(x) = 6\,x^2 - 8\,x$$

Write the factored form of $p(x)$: (Put them in order of smallest to largest coefficient of x)

$$p(x) = (\boxed{-2\,x})(\boxed{-3\,x + 4})$$

What are the zeros of $p(x)$? (List from (smallest / most negative) to (largest / most positive)) $\boxed{0}$, $\boxed{\dfrac{4}{3}}$

What are the x-intercepts of $p(x)$ (List from left to right) $(\boxed{0}, \boxed{0})$, $(\boxed{\dfrac{4}{3}}, \boxed{0})$

What is the y-intercept of $p(x)$? $(\boxed{0}, \boxed{0})$.

Problem 6 *Factor the following quadratic (Hint: The AC method is appropriate here)*

$$p(x) = -30\,x^2 + 42\,x - 12$$

Write the factored form of $p(x)$: (Put them in order of smallest to largest coefficient of x)

$$p(x) = (\boxed{-6\,x + 6})(\boxed{5\,x - 2})$$

What are the zeros of $p(x)$? (List from (smallest / most negative) to (largest / most positive)) $\boxed{\dfrac{2}{5}}$, $\boxed{1}$

What are the x-intercepts of $p(x)$ (List from left to right) $(\boxed{\dfrac{2}{5}}, \boxed{0})$, $(\boxed{1}, \boxed{0})$

What is the y-intercept of $p(x)$? $(\boxed{0}, \boxed{-12})$.