

## ALGEBRA 6: QUIZ SOLUTIONS

### Question 1

Use long division to determine the quotient when  $15x^2 - 11x - 14$  is divided by  $3x + 2$ .

- A.  $15x - 7$                       B.  $5x - 7$                       C.  $x - 7$                       D.  $-7x + 1$

### Solution

$$\begin{array}{r}
 5x - 7 \\
 3x + 2 \overline{) 15x^2 - 11x - 14} \\
 \underline{15x^2 + 10x} \phantom{- 14} \\
 -21x - 14 \\
 \underline{-21x - 14} \\
 0
 \end{array}$$

i.e., the quotient is  $5x - 7$ .

So, the correct answer is B.

### Question 2

Use long division to divide  $-6x^3 - 5x^2 + 18x + 11$  by  $3x - 2$ .

- A.  $-2x^2 - 3x + 4$ , rem 22                      B.  $x^2 + 4$ , rem  $-3$   
 C.  $-2x^2 - 3x + 4$ , rem 19                      D.  $-2x^2 - 3x + 4$ , rem 0

### Solution

$$\begin{array}{r}
 -2x^2 - 3x + 4 \\
 3x - 2 \overline{) -6x^3 - 5x^2 + 18x + 11} \\
 \underline{-6x^3 + 4x^2} \phantom{+ 18x + 11} \\
 -9x^2 + 18x \phantom{+ 11} \\
 \underline{-9x^2 + 6x} \phantom{+ 11} \\
 12x + 11 \\
 \underline{12x - 8} \\
 19
 \end{array}$$

i.e.,  $(-6x^3 - 5x^2 + 18x + 11) \div (3x - 2) = (-2x^2 - 3x + 4) + 19$ .

So, the correct answer is C.

**Question 3**

Use long division to determine the quotient when  $8x^2 + 22x - 63$  is divided by  $2x + 9$

- A.  $-4x + 1$       B.  $-4x - 1$       C.  $4x - 7$       D.  $4x + 7$

**Solution**

$$\begin{array}{r}
 4x - 7 \\
 2x + 9 \overline{) 8x^2 + 22x - 63} \\
 \underline{8x^2 + 36x} \phantom{- 63} \\
 \phantom{8x^2 + } -14x - 63 \\
 \phantom{8x^2 + } \underline{-14x - 63} \\
 \phantom{8x^2 + } \phantom{-14x - } 0
 \end{array}$$

i.e.,  $8x^2 + 22x - 63 = (2x + 9)(4x - 7)$ , no remainder.

So, the correct answer is C.

**Question 4**

Use long division to determine the quotient when  $12x^2 - 32x - 29$  is divided by  $2x - 7$

- A.  $6x + 5$       B.  $6x - 5$       C.  $-6x + 5$       D.  $-6x - 5$

**Solution**

$$\begin{array}{r}
 6x + 5 \\
 2x - 7 \overline{) 12x^2 - 32x - 35} \\
 \underline{12x^2 - 42x} \phantom{- 35} \\
 \phantom{12x^2 - } 10x - 35 \\
 \phantom{12x^2 - } \underline{10x - 35} \\
 \phantom{12x^2 - } \phantom{10x - } 0
 \end{array}$$

i.e., the quotient is  $6x + 5$ .

So, the correct answer is A.

**Question 5**

The Factor Theorem may be used to find a linear factor of  $f(x)$ .

- A. True      B. False

**Solution**

The statement is true.

So, the correct answer is A.