9-12-17 1st Trig

$$8\overline{)172}\quad 21\tfrac{4}{8}$$

-16

12

-8

4

$$x+2\overline{)x^2+7x-5}\quad x+5+\frac{-15}{x+2}$$

$-(x^2+2x)$ ↓

$5x-5$

$-(5x+10)$

-15

$$x+3\overline{)x^2+10x-1}\quad x+7+\frac{-22}{x+3}$$

$-(x^2+3x)$ ↓

$7x-1$

$-(7x+21)$

-22

$$x+2\overline{)x^2+5x+4}\quad x+3+\frac{-2}{x+2}$$

$-(x^2+2x)$ ↓

$3x+4$

$-(3x+6)$

-2

① $x+2 \overline{)\, x^2+9x+2}$ $\quad x+7+\frac{-12}{x+2}$

$-(x^2+2x)$ ↓

$7x+2$

$-(7x+14)$

-12

② $x-3 \overline{)\, x^2+5x+7}$ $\quad x+8+\frac{31}{x-3}$

$-(x^2-3x)$

$8x+7$

$-(8x-24)$

31

③ $x+7 \overline{)\, x^2-2x-1}$ $\quad x-9+\frac{62}{x+7}$

$-(x^2+7x)$ ↓

$-9x-1$

$-(-9x-63)$

62

④ $x-1 \overline{)\, x^2-5x-2}$ $\quad x-4+\frac{-6}{x-1}$

$-(x^2-1x)$ ↓

$-4x-2$

$-(-4x+4)$

-6

(5) $x+3 \overline{)\, x^3 + 10}$

Rewrite as

$$x+3 \overline{)\, x^3 + 0x^2 + 0x + 10}$$

$$x^2 - 3x + 9 + \frac{-17}{x+3}$$

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

$$-3x^2 + 0x$$

$$-(-3x^2 - 9x)$$

$$9x + 10$$

$$-(9x + 27)$$

$$-17$$

(6) $2x-1 \overline{)\, 6x-3}$

$$3$$

$$-(6x - 3)$$

$$0$$

9-12-17 3rd Trig

$$8\overline{)175}\quad 21+\tfrac{7}{8}$$

-16

15

-8

7

① $x+3\overline{)x^2+5x+7}$

$x+2+\frac{1}{x+3}$

$-(x^2+3x)$

$2x+7$

$-(2x+6)$

1

② $x+5\overline{)x^2+7x+2}$

$x+2+\frac{-8}{x+5}$

$-(x^2+5x)$

$2x+2$

$-(2x+10)$

-8

③ $x+4\overline{)x^2+9x+5}$

$x+5+\frac{-15}{x+4}$

$-(x^2+4x)$

$5x+5$

$-(5x+20)$

-15

(4) $x+2 \overline{)\, x^2+3x+11}$

$x + 1 + \frac{9}{x+2}$

$-(x^2+2x)$

$x+11$

$-(x+2)$

9

(5) $x-3 \overline{)\, x^2-7x+2}$

$x - 4 + \frac{-10}{x-3}$

$-(x^2-3x)$

$-7x + 3x$

$-4x+2$

$-(-4x+12)$

-10

(6) $x+4 \overline{)\, x^3+5}$

Rewrite

$x+4 \overline{)\, x^3+0x^2+0x+5}$

$x^2 - 4x + 16 + \frac{-59}{x+4}$

$-(x^3+4x^2)$

$-4x^2+0x$

$-(-4x^2-16x)$

$16x+5$

$-(16x+64)$

-59

⑦ $2x-1 \overline{)\,6x-3}$

$$\begin{array}{r} 3 \\ 6x-3 \\ \hline 0 \end{array}$$

⑧ $x+2 \overline{)\,x^2+7x+10}$

$$\begin{array}{r} x+5 \\ -(x^2+2x) \\ \hline 5x+10 \\ 5x+10 \\ \hline 0 \end{array}$$

$(x+2)(x+5)$

$x^2+7x+10$

9-12-17 4th Trig

$$7\overline{)157}\quad 22+\frac{3}{7}$$

-14

17

-14

3

① $x+2\overline{)x^2+5x+7}\quad x+3+\frac{1}{x+2}$

$-(x^2+2x)$

$3x+7$

$-(3x+6)$

1

② $x+4\overline{)x^2+6x+8}\quad x+2$

$-(x^2+4x)$

$2x+8$

$-(2x+8)$

0

$(x+4)(x+2)$

x^2+6x+8

③ $x+2\overline{)x^2+9x+3}\quad x+7+\frac{-11}{x+2}$

$-(x^2+2x)$

$7x+3$

$-(7x+14)$

-11

(4) $x+5 \overline{\big)\, x^2+2x+1}$

Quotient: $x - 3 + \frac{16}{x+5}$

$$-(x^2+5x)$$
$$-3x+1$$
$$-(-3x-15)$$
$$16$$

(5) $x+3 \overline{\big)\, x^2-4x-1}$

Quotient: $x - 7 + \frac{20}{x+3}$

$$-(x^2+3x)$$
$$-7x-1$$
$$-(-7x-21)$$
$$20$$

(6) $x-2 \overline{\big)\, x^2-5x-7}$

Quotient: $x - 3 + \frac{-13}{x-2}$

$$-(x^2-2x)$$
$$-3x-7$$
$$-(-3x+6)$$
$$-13$$

(7) $x+2 \overline{)\, x^3+7}$

Rewrite as

$$x+2 \overline{)\, x^3+0x^2+0x+7}$$

$$x^2-2x+4+\frac{-1}{x+2}$$

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

$$-2x^2+0x$$

$$-(-2x^2-4x)$$

$$4x+7$$

$$-(4x+8)$$

$$-1$$

(8) $2x+3 \overline{)\, 6x+9}$

$$3$$

$$-(6x+9)$$

$$0$$

(9) $x+4 \overline{)\, x^2+10}$

Rewrite

$$x+4 \overline{)\, x^2+0x+10}$$

$$x-4+\frac{26}{x+4}$$

$$-(x^2+4x)$$

$$-4x+10$$

$$-(-4x-16)$$

$$26$$