

$$1.) (10x^3 - 3) + (5x^2 + 3x - 6)$$

$$\begin{array}{r} 10x^3 \quad \quad -3 \\ -5x^2 - 3x + 6 \\ \hline 10x^3 - 5x^2 - 3x + 3 \end{array}$$

[A]

$$2.) (8x^2 - 7x + 2) + (3x^2 - 9x - 6)$$

$$\begin{array}{r} 8x^2 - 7x + 2 \\ + 3x^2 - 9x - 6 \\ \hline 11x^2 - 16x - 4 \end{array}$$

$$3.) (3x-8)(3x+8)$$

$$\begin{array}{r} 9x^2 + \cancel{24x} - \cancel{24x} - 64 \\ 9x^2 - 64 \end{array}$$

[D]

$$4.) (4x+1)^2$$

$$\begin{array}{r} (4x+1)(4x+1) \\ 16x^2 + 4x + 4x + 1 \\ \hline 16x^2 + 8x + 1 \end{array}$$

[B]

$$5.) (8x^2 - 4x - 6)(3x+6)$$

$$\begin{array}{r} (3x+6)(8x^2 - 4x - 6) \\ 24x^3 - 12x^2 - 18x \\ + 48x^2 - 24x - 36 \\ \hline 24x^3 + 36x^2 - 42x - 36 \end{array}$$

$$24x^3 + 36x^2 - 42x - 36$$

[B]

$$6.) (8x^5 - 24x^4) - (8x^3 - 7)(2x^2 - 6x + 4)$$

$$(8x^5 - 24x^4) + (25x^5 - 65x^4 + 45x^3 - 14x^2 + 42x - 28)$$

$$8x^5 - 24x^4 - 25x^5 + 65x^4 - 45x^3 + 14x^2 - 42x + 28$$

$$\begin{array}{r} 8x^5 - 25x^5 - 24x^4 + 65x^4 - 45x^3 + 14x^2 - 42x + 28 \\ \downarrow \\ -16x^3 + 14x^2 - 42x + 28 \end{array}$$

Same sign
answer is +

$$-16 \div -4 = 4$$

[B]

$$7.) \begin{array}{ccc} 7x^3 & -70x^2 & +147x \\ \hline 7x & \hline 7x & \hline 7x & \hline \end{array} \quad \text{GCF} = 7x$$

$$7x(x^2 - 10x + 21)$$

$$\begin{array}{cc} 21 & 10 \\ \hline 1 \cdot 21 & -1 - 21 \\ 3 \cdot 7 & (-3 - 7) \end{array}$$

$$7x(x-3)(x-7)$$

[D]

$$8.) \begin{array}{ccc} -0.9x^2 & -5.4x & +6.3 \\ \hline -0.9 & \hline -0.9 & \hline -0.9 & \hline \end{array}$$

$$\text{GCF} = -0.9$$

$$-0.9(x^2 + 6x - 7)$$

$$\begin{array}{cc} 7 & 6 \\ \hline 1 \cdot 7 & (-1 - 6) \end{array}$$

$$-0.9(x+7)(x-1)$$

[A]

$$9.) \quad x^2 + 2x - 15$$

$$(x+5)(x-3)$$

$$\boxed{C}$$

$\frac{15}{1 \cdot 15}$ $\frac{2}{15 \cdot 1}$
 $3 \cdot 5$ $(5-3)$

$$10.) \quad \frac{10x^2 + 25x}{5x} = \frac{5x}{5x} \quad GCF = 5x$$

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

$$\boxed{A}$$

$$11.) \quad \frac{x^2 - 64}{x} = \frac{x}{x} \cdot \frac{8}{8}$$

$$(x+4)(x-8)$$

$$\boxed{C}$$

$$12.) \quad \frac{2x^2 - 18}{x+3} = \frac{2(x-3)}{x+3} = 2x-6$$

$$\boxed{B}$$

$$\begin{array}{l|l} T & B \\ \hline GCF=2 & \\ \hline \frac{2x^2-18}{2} & \frac{x+3}{x+3} \\ \hline 2(x^2-9) & \\ \hline 2(x+3)(x-3) & \end{array}$$

$$13.) \quad \frac{2x^3 + 14x^2 - 8x}{2x} = x^2 + 7x - 4$$

$$\boxed{D}$$

$$\begin{array}{l|l} GCF=2x & B \\ \hline T & \\ \hline \frac{2x^3+14x^2-8x}{2x} & \frac{2x}{2x} \\ \hline x^2+7x-4 & \\ \hline \end{array}$$

$$14.) \quad \frac{x^2 + 7x - 8}{(x+8)(x+2)} = \frac{x-1}{x+2}$$

$$\boxed{D}$$

$$\begin{array}{l|l} T & B \\ \hline x^2+7x-8 & (x+8)(x+2) \\ \hline (x+8)(x-1) & \end{array}$$

$$15.) \quad \frac{x-5}{-10x^2+60x-50} = \frac{1}{-10(x-1)} = \frac{1}{-10x+10}$$

$$\boxed{D}$$

$$\begin{array}{l|l} T & B \quad GCF=-10 \\ \hline x-5 & \\ \hline \frac{-10x^2+60x-50}{-10} & \frac{-10x^2+60x-50}{-10} \\ \hline -10(x^2-6x+5) & \\ \hline -10(x-5)(x-1) & \end{array}$$

$$16.) \quad \frac{4x^2 - 64}{x^2 + 6x + 8} = \frac{4(x-4)}{x+2} = \frac{4x-16}{x+2}$$

$$\boxed{D}$$

$$\begin{array}{l|l} T & B \\ \hline GCF=4 & \\ \hline \frac{4x^2-64}{4} & x^2+6x+8 \\ \hline 4(x^2-16) & (x+2)(x+4) \\ \hline 4(x-4)(x+4) & \end{array}$$

$$17.) \quad \frac{4x^8 - 28x^{15}}{x^2 - 7x^9} = \frac{4x^8(1-7x^7)}{x^2(1-7x^7)} = \frac{4x^8}{x^2} = 4x^6$$

$$\boxed{A}$$

$$\begin{array}{l|l} GCF=4x^8 & B \\ \hline T & \\ \hline \frac{4x^8-28x^{15}}{4x^8} & \frac{x^2-7x^9}{x^2} \\ \hline 4x^8(1-7x^7) & x^2(1-7x^7) \end{array}$$

17. Simplify the following expression.

$$\frac{4x^8 - 28x^{15}}{x^2 - 7x^9}$$

☐ A. $4x^6$

☐ B. $-4x^7$

☐ C. $4x^8$

☐ D. $8x^6$

18. Imp

$$\frac{3x^2 + 21x + 36}{3x^2 + 6x - 24}$$

☐ A. $\frac{x-3}{3x-1}$

☐ B. $\frac{3x+9}{x+2}$

☐ C. $\frac{x+3}{x-2}$

☐ D. $\frac{x-3}{x+6}$

19. A band just recorded a new album with 10 tracks. The shortest song on the album is 1 minute and 17 seconds. The longest song on the album is 5 minutes and 56 seconds. What is a reasonable estimate for the total time of the album?

☐ A. ~~4 minutes~~

☐ B. 70 minutes

☐ C. ~~9 minutes~~

☒ D. 35 minutes

18.) $\frac{3x^2 + 21x + 36}{3x^2 + 6x - 24} = \frac{x+3}{x-2} \boxed{C}$

19.) 1 minutes 17 seconds
1 minute
5 minutes 56 seconds
6 minutes

$$\frac{7}{2} = 3.5$$

$$\frac{\times 10}{35 \text{ minutes}}$$

T GCF=3 | B GCF=3

$$\frac{3x^2 + 21x + 36}{3} \quad \frac{3x^2 + 6x - 24}{3}$$

$$3(x^2 + 7x + 12)$$

$$3(x+3)(x+4)$$

$$\frac{3x^2 + 6x - 24}{3}$$

$$3(x^2 + 2x - 8)$$

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

$$\frac{8}{1.8} \quad \frac{2}{8-1}$$

$$2.4 \quad \boxed{4-2}$$

$$20.) \sqrt{150} = 12.2 \dots$$

$\sqrt{25} \cdot \sqrt{6}$
 $5\sqrt{6}$

~~A) 17~~

$$B.) 25\sqrt{4} = 61.2 \dots$$

$$C.) 5\sqrt{6} = 12.2 \dots$$

$$D.) 6\sqrt{5} = 13.4 \dots$$

$$21.) \sqrt{18} \times 2\sqrt{2} = 12$$

A.) $3\sqrt{2}$

B.) 16

C.) 44

D.) 12

$$22.) L \rightarrow G$$

$$3.\overline{2}, \frac{16}{5}, \sqrt{11}, 3.1$$

3.22	3.20	3.30	3.10
3rd	2nd	4th	1st

$$3.1, \frac{16}{5}, 3.\overline{2}, \sqrt{11}$$

$$23.) \text{GCF}$$

$$125x^4y^3z^6 \quad 135x^2y^5$$

$$\boxed{\text{GCF} = 5x^2y^3}$$