#1 ID: dd4ab4c4

$4a^2+20ab+25b^2$

Which of the following is a factor of the polynomial above?

A) $a+b$

B) $2a+5b$

C) $4a+5b$

D) $4a+25b$

#2 ID: b8caaf84

If $p=3x+4$ and $v=x+5$, which of the following is equivalent to $pv-2p+v$?

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

B) $3x^2+14x+17$

C) $3x^2+19x+20$

D) $3x^2+26x+33$

#3 ID: 52931bfa

Which expression is equivalent to $\frac{8x(x-7)-3(x-7)}{2x-14}$, where $x>7$?

A) $\frac{x-7}{5}$

B) $\frac{8x-3}{2}$

C) $\frac{8x^2-3x-14}{2x-14}$

D) $\frac{8x^2-3x-77}{2x-14}$

#4 ID: ad2ec615

Which of the following is equivalent to the expression x^4-x^2-6?

A) $(x^2+1)(x^2-6)$

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

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

D) $(x^2+6)(x^2-1)$

#5 ID: 42c71eb5

$(2x+5)^2-(x-2)+2(x+3)$

Which of the following is equivalent to the expression above?

A) $4x^2+21x+33$

B) $4x^2+21x+29$

C) $4x^2+x+29$

D) $4x^2+x+33$

#6 ID: a05bd3a4

Which of the following expressions is equivalent to x^2-5 ?

A) $(x+\sqrt{5})^2$

B) $(x-\sqrt{5})^2$

C) $(x+\sqrt{5})(x-\sqrt{5})$

D) $(x+5)(x-1)$

#7 ID: 3206b905

Which of the following expressions is equivalent to $8x^{10} - 8x^9 + 88x$?

A) $x(7x^{10} - 7x^9 + 87x)$

B) $x(8^{10} - 8^9 + 88)$

C) $8x(x^{10} - x^9 + 11x)$

D) $8x(x^9 - x^8 + 11)$

#8 ID: b4a6ed81

The expression $90y^5 - 54y^4$ is equivalent to $ry^4(15y - 9)$, where r is a constant. What is the value of r ?

#9 ID: cc776a04

Which of the following is an equivalent form of $(1.5x-2.4)^2-(5.2x^2-6.4)$?

A) $-2.2x^2 + 1.6$

B) $-2.2x^2 + 11.2$

C) $-2.95x^2 - 7.2x + 12.16$

D) $-2.95x^2 - 7.2x + 0.64$

#10 ID: fde6f3bb

$$g(x) = \frac{3}{5}x + \frac{7}{6}$$

$$h(x) = 6x - 5$$

The functions g and h are defined by the equations shown. Which expression is equivalent to $g(x) \cdot h(x)$?

A) $\frac{18x^2}{5} - \frac{35}{6}$

B) $\frac{18x^2}{5} + \frac{27x}{11} - \frac{35}{6}$

C) $\frac{18x^2}{5} - 4x - \frac{35}{6}$

D) $\frac{18x^2}{5} + 4x - \frac{35}{6}$

#11

ID: a520ba07

$\sqrt[3]{x^3y^6}$

Which of the following expressions is equivalent to the expression above?

A) y^2

B) xy^2

C) y^3

D) xy^3

#12

ID: 5b6af6b1

Which expression is equivalent to $(d - 6)(8d^2 - 3)$?

A) $8d^3 - 14d^2 - 3d + 18$

B) $8d^3 - 17d^2 + 48$

C) $8d^3 - 48d^2 - 3d + 18$

D) $8d^3 - 51d^2 + 48$

#13

ID: a255ae72

If $x^2 = a + b$ and $y^2 = a + c$, which of the following is equal to $(x^2 - y^2)^2$?

A) $a^2 - 2ac + c^2$

B) $b^2 - 2bc + c^2$

C) $4a^2 - 4abc + c^2$

D) $4a^2 - 2abc + b^2c^2$

#14

ID: 463eec13

If $x \neq 0$, which of the following expressions is equivalent to $\dfrac{\sqrt{16x^4y^8}}{x^3}$?

A) $8x^2y^4$

B) $4xy^4$

C) $4x^{-2}y^2$

D) $4x^{-1}y^4$

#15

ID: a1bf1c4e

$x^2 + 6x + 4$

Which of the following is equivalent to the expression above?

A) $(x + 3)^2 + 5$

B) $(x + 3)^2 - 5$

C) $(x - 3)^2 + 5$

D) $(x - 3)^2 - 5$

#16

ID: 6d04c89d

The expression $\frac{24}{6x+42}$ is equivalent to $\frac{4}{x+b}$, where b is a constant and $x > 0$. What is the value of b?

A) 7

B) 10

C) 24

D) 252

#17

ID: 5805e747

Which expression is equivalent to $(7x^3 + 7x) - (6x^3 - 3x)$?

A) $x^3 + 10x$

B) $-13x^3 + 10x$

C) $-13x^3 + 4x$

D) $x^3 + 4x$

#18

ID: 26eb61c1

Which expression is equivalent to $6x^8 y^2 + 12x^2 y^2$?

A) $6x^2 y^2 (2x^6)$

B) $6x^2 y^2 (x^4)$

C) $6x^2 y^2 (x^6 + 2)$

D) $6x^2 y^2 (x^4 + 2)$

#19

ID: 42f19012

Which expression is equivalent to $a^{\frac{11}{12}}$, where $a > 0$?

A) $\sqrt[12]{a^{132}}$

B) $\sqrt[144]{a^{132}}$

C) $\sqrt[121]{a^{132}}$

D) $\sqrt[11]{a^{132}}$

#20

ID: f237ccfc

The sum of $-2x^2 + x + 31$ and $3x^2 + 7x - 8$ can be written in the form $ax^2 + bx + c$, where a, b, and c are constants. What is the value of $a + b + c$?

#21

ID: a391ed22

$$\left(\frac{1}{2}x + \frac{3}{2}\right)\left(\frac{3}{2}x + \frac{1}{2}\right)$$

The expression above is equivalent to $ax^2 + bx + c$, where a, b, and c are constants. What is the value of b?

#22

ID: 1be909aa

Which expression is equivalent to $\frac{h^{15}q^{7}}{h^{5}q^{21}}$, where $h > 0$ and $q > 0$?

A) $\frac{h^{10}}{q^{14}}$

B) $\frac{h^{3}}{q^{3}}$

C) $h^{10}q^{14}$

D) $h^{3}q^{3}$

#23

ID: 482a445b

Which expression is equivalent to $(x^2 + 11)^2 + (x - 5)(x + 5)$?

A) $x^4 + 23x^2 - 14$

B) $x^4 + 23x^2 + 96$

C) $x^4 + 12x^2 + 121$

D) $x^4 + x^2 + 146$

#24

ID: 24016dee

Which expression is equivalent to $(8x^3 + 8) - (x^3 - 2)$?

A) $8x^3 + 6$

B) $7x^3 + 10$

C) $8x^3 + 10$

D) $7x^3 + 6$

#25

ID: c3a72da5

Which of the following is equivalent to the sum of $3x^4 + 2x^3$ and $4x^4 + 7x^3$?

A) $16x^{14}$

B) $7x^8 + 9x^6$

C) $12x^4 + 14x^3$

D) $7x^4 + 9x^3$

#26

ID: 16de54c7

$2x^2 + 5x - 12$

If the given expression is rewritten in the form $(2x - 3)(x + k)$, where k is a constant, what is the value of k ?

#27

ID: d9137a84

Which expression represents the product of $(x^{-6}y^3z^5)$ and $(x^4z^5 + y^8z^{-7})$?

A) $x^{-2}z^{10} + y^{11}z^{-2}$

B) $x^{-2}z^{10} + x^{-6}z^{-2}$

C) $x^{-2}y^3z^{10} + y^8z^{-7}$

D) $x^{-2}y^3z^{10} + x^{-6}y^{11}z^{-2}$

#28

ID: 3e9cc0c2

Which of the following is equivalent to $(1-p)(1+p+p^2+p^3+p^4+p^5+p^6)$?

A) $1-p^8$

B) $1-p^7$

C) $1-p^6$

D) $1-p^5$

#29

ID: 7348f046

$(2x+3)-(x-7)$

Which of the following is equivalent to the given expression?

A) $x-4$

B) $3x-4$

C) $x+10$

D) $2x^2+21$

#30

ID: 26e83bbc

$$f(x) = x^2 + bx$$

$$g(x) = 9x^2 - 27x$$

Functions f and g are given, and in function f, b is a constant. If $f(x) \cdot g(x) = 9x^4 - 26x^3 - 3x^2$, what is the value of b ?

A) -26

B) $-\frac{26}{9}$

C) $\frac{1}{9}$

D) 9

#31

ID: b47419f4

$\left(\frac{1}{2}x+3\right)-\left(\frac{2}{3}x-5\right)$

Which of the following is equivalent to the expression above?

A) $-\frac{1}{6}x+8$

B) $-\frac{1}{6}x-2$

C) $-\frac{1}{3}x^2+\frac{1}{2}x+15$

D) $-\frac{1}{3}x^2-\frac{9}{2}x-15$

#32

ID: 8838a672

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

Which of the following expressions is equivalent to the expression above?

A) $-10x^3-3x^2+x+3$

B) $-2x^3-7x^2+x+3$

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

D) $10x^3-7x^2-x+3$

#33

ID: 0b3d25c5

Which of the following is equivalent to $\sqrt[4]{x^2+8x+16}$, where $x>0$?

A) $(x+4)^4$

B) $(x+4)^2$

C) $(x+4)$

D) $(x+4)^{\frac{1}{2}}$

#34

ID: 1dd13816

$(5x^3 - 3) - (-4x^3 + 8)$

The given expression is equivalent to $bx^3 - 11$, where b is a constant. What is the value of b?

#35

ID: 4eaf0a3a

Which expression is equivalent to $\sqrt[7]{x^9 y^9}$, where x and y are positive?

A) $(xy)^{\frac{7}{9}}$

B) $(xy)^{\frac{9}{7}}$

C) $(xy)^{16}$

D) $(xy)^{63}$

#36

ID: c602140f

$(x-11y)(2x-3y)-12y(-2x+3y)$

Which of the following is equivalent to the expression above?

A) $x-23y$

B) $2x^2-xy-3y^2$

C) $2x^2+24xy+36y^2$

D) $2x^2-49xy+69y^2$