Math | Advanced Math | Equivalent expressions | Medium

#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 $\frac{\sqrt{16x^4y^8}}{x^3}$?

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

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

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

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

#23

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) $7x^3 + 6$

#24

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

#25

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 ?

#26

ID: d9137a84

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

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

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

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

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

#27

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) $1-p^5$

#28

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) $2x^2 + 21$

#29

ID: b47419f4

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

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

#30

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

#31

ID: 0b3d25c5

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

A) $(x + 4)$

B) $(x + 4)^2$

C) $(x + 4)$

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

#32

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?

#33

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) $(xy)^{63}$

#34

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