Question ID 371cbf6b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: 371cbf6b

3.1

$$(ax+3)(5x^2-bx+4)=20x^3-9x^2-2x+12$$

The equation above is true for all x, where a and b are constants. What is the value of ab ?

A. 18

B. 20

C. 24

D. 40

Question ID 40c09d66

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: 40c09d66

3.2

If $\frac{\sqrt{x^5}}{\sqrt[3]{x^4}} = x^{\frac{a}{b}}$ for all positive values of x, what is the value of $\frac{a}{b}$?

Question ID 34847f8a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: 34847f8a

3.3

$$\frac{2}{x-2}+\frac{3}{x+5}=\frac{rx+t}{(x-2)(x+5)}$$

The equation above is true for all $x > 2$, where r and t are positive constants. What is the value of rt ?

A. -20

B. 15

C. 20

D. 60

Question ID 137cc6fd

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: 137cc6fd

3.4

$$\sqrt[5]{70n}\left(\sqrt[6]{70n}\right)^2$$

For what value of x is the given expression equivalent to $(70n)^{30x}$, where $n > 1$?

Question ID ea6d05bb

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: ea6d05bb

3.5

The expression $(3x - 23)(19x + 6)$ is equivalent to the expression $ax^2 + bx + c$, where a, b, and c are constants. What is the value of b?

Question ID d8789a4c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: d8789a4c

3.6

$$\frac{x^2-c}{x-b}$$

In the expression above, *b* and *c* are positive integers. If the expression is equivalent to $x+b$ and $x \neq b$, which of the following could be the value of *c*?

A. 4

B. 6

C. 8

D. 10

Question ID 5355c0ef

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: 5355c0ef

3.7

$$0.36x^2 + 0.63x + 1.17$$

The given expression can be rewritten as $a(4x^2 + 7x + 13)$, where a is a constant. What is the value of a?

Question ID c81b6c57

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: c81b6c57

3.8

In the expression $3(2x^2+px+8)-16x(p+4)$, p is a constant. This expression is equivalent to the expression $6x^2-155x+24$. What is the value of p ?

A. -3

B. 7

C. 13

D. 155

Question ID 2c88af4d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: 2c88af4d

3.9

The expression $\frac{x^{-2}y^{\frac{1}{2}}}{x^{\frac{1}{3}}y^{-1}}$, where $x > 1$ and $y > 1$, is equivalent to which of the following?

A. $\frac{\sqrt{y}}{\sqrt[3]{x^2}}$

B. $\frac{y\sqrt{y}}{\sqrt[3]{x^2}}$

C. $\frac{y\sqrt{y}}{x\sqrt{x}}$

D. $\frac{y\sqrt{y}}{x^2\sqrt[3]{x}}$

Question ID 22fd3e1f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: 22fd3e1f

3.10

$f(x) = x^3 - 9x$

$g(x) = x^2 - 2x - 3$

Which of the following expressions is equivalent to $\frac{f(x)}{g(x)}$, for $x > 3$?

A. $\frac{1}{x+1}$

B. $\frac{x+3}{x+1}$

C. $\frac{x(x-3)}{x+1}$

D. $\frac{x(x+3)}{x+1}$

Question ID a0b4103e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: a0b4103e

3.11

The expression $\frac{1}{3}x^2-2$ can be rewritten as $\frac{1}{3}(x-k)(x+k)$, where k is a positive constant. What is the value of k ?

A. 2

B. 6

C. $\sqrt{2}$

D. $\sqrt{6}$

Question ID ad038c19

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: ad038c19

3.12

Which of the following is equivalent to $\left(a+\frac{b}{2}\right)^2$?

A. $a^2+\frac{b^2}{2}$

B. $a^2+\frac{b^2}{4}$

C. $a^2+\frac{ab}{2}+\frac{b^2}{2}$

D. $a^2+ab+\frac{b^2}{4}$

Question ID 12e7faf8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: 12e7faf8

3.13

The equation $\frac{x^2+6x-7}{x+7} = ax+d$ is true for all $x \neq -7$, where *a* and *d* are integers. What is the value of $a+d$?

A. -6

B. -1

C. 0

D. 1

Question ID 89fc23af

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: 89fc23af

3.14

Which of the following expressions is equivalent to $\frac{x^2-2x-5}{x-3}$?

A. $x-5-\frac{20}{x-3}$

B. $x-5-\frac{10}{x-3}$

C. $x+1-\frac{8}{x-3}$

D. $x+1-\frac{2}{x-3}$

Question ID 911c415b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: 911c415b

$(7532+100y^2)+10(10y^2-110)$

3.15

The expression above can be written in the form ay^2+b, where *a* and *b* are constants. What is the value of $a+b$?

Question ID f89e1d6f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: f89e1d6f

3.16

If $a = c + d$, which of the following is equivalent to the expression $x^2 - c^2 - 2cd - d^2$?

A. $(x + a)^2$

B. $(x - a)^2$

C. $(x + a)(x - a)$

D. $x^2 - ax - a^2$

Question ID e117d3b8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: e117d3b8

3.17

If a and c are positive numbers, which of the following is equivalent to $\sqrt{(a+c)^3} \cdot \sqrt{a+c}$?

A. $a+c$

B. a^2+c^2

C. $a^2+2ac+c^2$

D. a^2c^2

Question ID c6e85cd7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

ID: c6e85cd7

3.18

If $4^{8c} = \sqrt[3]{4^7}$, what is the value of c?