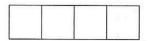
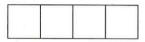
Exercise Set 4 (No Calculator)

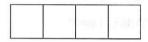
If $2a^2 + 3a - 5a^2 = 9$, what is the value of $a - a^2$?



If $(200)(4,000) = 8 \times 10^m$, what is the value of *m*?



If $w = -10^{30}$, what is the value of $\frac{8w^2}{(8w)^2}$?



If $2^x = 10$, what is the value of $5(2^{2x}) + 2^x$?



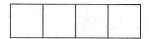
If (x + 2)(x + 4)(x + 6) = 0, what is the greatest possible value of $\frac{1}{2^x}$?



If $(4+4\sqrt{2})^2 = a+b\sqrt{2}$, where a and b are integers, what is the value of a + b?



If $\frac{a}{3+\sqrt{5}} = \frac{3-\sqrt{5}}{h}$, what is the value of $(ab)^{\frac{3}{2}}$?



If $9^x = 25$, what is the value of 3^{x-1} ?

A)
$$\frac{3}{25}$$

B)
$$\frac{5}{3}$$

A)
$$\frac{3}{25}$$
 B) $\frac{5}{3}$ C) $\frac{25}{3}$

If $g(x,y) = \frac{2x}{y^3}$ and a and b are positive numbers, what is the value of $\frac{g(4a,2b)}{g(a,b)}$?

A)
$$\frac{1}{4}$$
 B) $\frac{1}{2}$ C) 2

B)
$$\frac{1}{2}$$

Which of the following is equivalent to $\frac{2^n \times 2^n}{2^n \times 2}$ for all positive values of n?

- A) 2
- B) 2^n
- C) 2^{n-1}

D) 2^{2n}

Which of the following is equivalent to $3^m + 3^m + 3^m$ for all positive values of m?

- A) 3^{m+1}
- B) 3^{2m}
- C) 3^{3m}

D) 3^{3m+1}

If x is a positive number and $5^x = y$, which of the following expresses $5y^2$ in terms of x?

- A) 5^{2x}
- B) 5^{2x+1}
- C) 5^{3x}

D) 25^{2x}