Radical and Rational Exponents Problems

1. $\left(x^3\right)^4 \times x^{-12}$

   Which of the following expressions is equivalent to the expression above for all x ≠ 0? (No Calc)

   A) 0
   B) 1
   C) x^{-5}
   D) x^5

2. $4^{-\frac{1}{2}} \times 4^2$

   What is the value of the expression above? (No Calc)

   A) 2
   B) 4
   C) 8
   D) 16

3. Which of the following is equivalent to $\frac{7}{\sqrt{8}}$?

   (No Calc)

   A) $\frac{7\sqrt{2}}{8}$
   B) $\frac{7\sqrt{2}}{2}$
   C) $\frac{2}{7\sqrt{2}}$
   D) $\frac{7\sqrt{2}}{4}$

4. $\sqrt{27}+\sqrt{243}=a\sqrt{3}$, then what is the value of a? (Calc)

   A) 12
   B) $12\sqrt{3}$
   C) 30
   D) $30\sqrt{3}$

5. $\frac{3+\sqrt{5}}{6-\sqrt{5}}$

   Which of the following is equivalent to the expression above? (No Calc)

   A) $\frac{1}{2}$
   B) $\frac{14-2\sqrt{5}}{32-12\sqrt{5}}$
   C) $-\frac{1}{2}$
   D) $\frac{23+9\sqrt{5}}{31}$

6. $\sqrt[3]{7^2}+3\sqrt[3]{7^2}=4\times 7^x$

   What is the value of x? (No Calc)

   A) $\frac{2}{3}$
   B) $\frac{3}{2}$
   C) $\frac{4}{3}$
   D) $\frac{3}{7}$

7. $\left(x^{\frac{3}{8}}\right)^{\frac{1}{3}}$

   Which of the following expressions is equivalent of the expression above? (No Calc)

   A) $x^{\frac{9}{8}}$
   B) $x^{\frac{1}{3}}$
   C) $x^{\frac{1}{24}}$
   D) $x^{\frac{1}{8}}$

Radical and Rational Exponents Problems

8. $\left(\frac{j^4}{16}\right)^{\frac{3}{4}}$

Which of the following expressions is equivalent to the expression above? (Calc)

A) $\frac{j^{12}}{65536}$

B) $\frac{j^3}{8}$

C) $\frac{j^{12}}{64}$

D) $\frac{j^3}{4}$

9. $\left(3y^{10}z^5\right)^4$

Which of the following expressions is equivalent to the expression above? (Calc)

A) $12y^{40}z^{20}$

B) $81y^{1000}z^{625}$

C) $81y^{40}z^{20}$

D) $12y^{1000}z^{625}$

10. $\sqrt{9h^2+16h^2}+\sqrt[3]{h^2}$

Which of the following expressions is equivalent to the expression above? (No Calc)

A) $7h+\sqrt[3]{h^2}$

B) $26h$

C) $\sqrt{26h^2}$

D) $5h+\sqrt[3]{h^2}$