Algebra I EOC Practice #7

SPI 3102.2.1: Operate (add, subtract, multiply, divide, simplify, powers) with radicals and radical expressions including radicands involving rational numbers and algebraic expressions.

1. If the value of the variable x is positive, what is the sum of $7\sqrt{3x}$ and $\sqrt{3x}$?

   A. $7\sqrt{3x}$
   B. $8\sqrt{3x}$
   C. $7\sqrt{6x}$
   D. $8\sqrt{6x}$

2. What is the value of the following expression?

   $$\sqrt{\frac{36}{49}} - \sqrt{\frac{25}{64}}$$

   A. $\dfrac{1079}{3136}$
   B. $\dfrac{83}{56}$
   C. $\dfrac{11}{15}$
   D. $\dfrac{13}{56}$

3. Write $\sqrt{75}$ in simplest radical form.

   A. $5\sqrt{3}$
   A. $15\sqrt{5}$
   B. $3\sqrt{5}$
   C. $5\sqrt{15}$

4. Which expression is equivalent to $(\sqrt{5x^2})^4$?

   A. $5x^4$
   B. $25x^4$
   C. $25x^8$
   D. $625x^8$

5. Which expression is equivalent to $\dfrac{10x}{\sqrt{5}}$?

   A. $2x\sqrt{5}$
   B. $10x\sqrt{5}$
   C. $5x\sqrt{2}$
   D. $\dfrac{10x}{25}$

6. What is the product of $2\sqrt{3}$ and $3\sqrt{5}$?

   A. $5\sqrt{15}$
   B. $6\sqrt{8}$
   C. $5\sqrt{8}$
   D. $6\sqrt{15}$

7. Write $\sqrt{18x^4y^5}$ in simplest radical form.

   A. $2x^2y^2\sqrt{3y}$
   B. $3x^2y^2\sqrt{6y}$
   C. $2xy\sqrt{3y^2}$
   D. $3x^2y^2\sqrt{2y}$

8. If $x \neq -\dfrac{2}{3}$, which expression is equivalent to $\dfrac{3x^2 + 20x + 12}{\sqrt{9x^2 + 12x + 4}}$?

   A. $x + 6$
   B. $3x + 2$
   C. $-6x^2 + 8x - 8$
   D. $12x^2 + 32x + 16$