1. Simplify. Make sure the denominator is rationalized. Assume that all variables are positive.

$$\frac{\sqrt[5]{30a^6b^4}}{\sqrt[5]{54a^3b^{11}}}$$

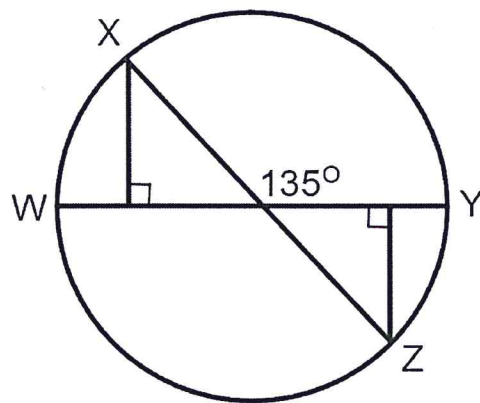2. Rationalize the denominator. Simplify your answer.

$$\frac{3\sqrt{2}+6}{4\sqrt{3}-\sqrt{2}}$$

3. If $k < 0$ and $x = 7$ in the equation below, what is the value of $x - k$?

$$\sqrt{2k^2+17} - x = 0$$

4. If $\overline{WY}$ and $\overline{XZ}$ are diameters with lengths of 12, what is the total area of the two triangles?

A. 36   B. 30   C. 18   D. 12   E. 9

1. Simplify. Make sure the denominator is rationalized. Assume that all variables are positive.

$$\frac{\sqrt[5]{30a^6b^4}}{\sqrt[5]{54a^3b^{11}}}$$

$$= \frac{\sqrt[5]{5a^3}}{\sqrt[5]{9b^7}} \cdot \frac{\sqrt[5]{3^3b^3}}{\sqrt[5]{3^3b^3}}$$

$$= \frac{\sqrt[5]{135a^3b^3}}{\sqrt[5]{3^5b^{10}}}$$

$$= \boxed{\frac{\sqrt[5]{135a^3b^3}}{3b^2}}$$

2. Rationalize the denominator. Simplify your answer.

$$\frac{3\sqrt{2}+6}{4\sqrt{3}-\sqrt{2}} \cdot \frac{4\sqrt{3}+\sqrt{2}}{4\sqrt{3}+\sqrt{2}}$$

$$= \frac{(3\sqrt{2}+6)(4\sqrt{3}+\sqrt{2})}{(4\sqrt{3})^2-(\sqrt{2})^2} = \frac{16\cdot3-2}{48-2}$$

	$3\sqrt{2}$	$+6$
$4\sqrt{3}$	$12\sqrt{6}$	$24\sqrt{3}$
$+\sqrt{2}$	$3\cdot2 = 6$	$6\sqrt{2}$

$$= \frac{12\sqrt{6}+24\sqrt{3}+6\sqrt{2}+12}{46}$$

$$= \boxed{\frac{6\sqrt{6}+12\sqrt{3}+3\sqrt{2}+6}{23}}$$

3. If $k < 0$ and $x = 7$ in the equation below, what is the value of $x - k$?

$$\sqrt{2k^2+17}-x=0$$

$$\left(\sqrt{2k^2+17}\right)^2 = (x)^2$$

$$2k^2+17 = x^2$$
$$2k^2+17 = (7)^2$$
$$2k^2+17 = 49$$
$$-17 -17$$
$$\frac{2k^2}{2} = \frac{32}{2}$$
$$\sqrt{k^2} = \sqrt{16}$$

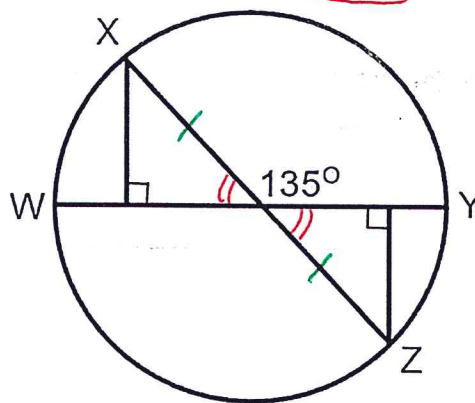$$k = \pm4$$

since $k<0 \Rightarrow k=-4$
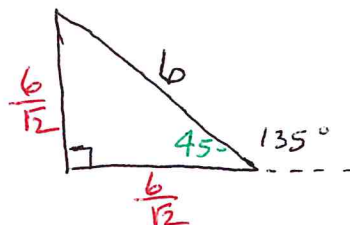
$$x-k = 7-(-4)$$

$$= \boxed{11}$$

4. If $\overline{WY}$ and $\overline{XZ}$ are diameters with lengths of 12, what is the total area of the two triangles?

A. 36   B. 30   (C. 18)   D. 12   E. 9

• ∆'s are ≅ find area of one then ×2
• DIA=12 means radius = 6

legs of a 45°-45°-90° = $\frac{HYPOT}{\sqrt{2}}$

Area one ∆ $= \frac{1}{2}\left(\frac{6}{\sqrt{2}}\right)\left(\frac{6}{\sqrt{2}}\right) = \frac{1}{2}\left(\frac{36}{2}\right)$
$= \frac{1}{2}(18) = 9$

Area of 2 ∆s $= 2\times9 = 18$