

SAT Warm up

If $3x + 5 \geq 17$ and $2(x + 3) < 20$, what is a possible integer value of x ?

$$-5 \quad -5$$

$$3x \geq 12$$

$$x \geq 4$$

$$2x + 6 < 20$$

$$2x < 14$$

$$x < 7$$

$$4 \leq x < 7$$

Radical Expressions

$$(\sqrt{3} \cdot \sqrt{5})^2 = \sqrt{3} \cdot \sqrt{3} \cdot \sqrt{5} \cdot \sqrt{5}$$

$$\sqrt{9} \cdot \sqrt{25}$$

$$3 \cdot 5 = 15$$

Product Property Rule

$$\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$$

or

$$\sqrt[n]{ab} = \sqrt[n]{a} \cdot \sqrt[n]{b}$$

$$\sqrt{48} \quad \sqrt{16 \cdot 3} \quad \frac{\sqrt{16} \sqrt{3}}{4 \sqrt{3}}$$

$$\sqrt{50}$$

$$\frac{\sqrt{25} \sqrt{2}}{5 \sqrt{2}}$$

Multiplying Radicals and Rationalizing the Denominator

$$3\sqrt{6x^2} \cdot 2\sqrt{3x^4}$$

$$6\sqrt{18x^6}$$

$$18x^3\sqrt{2}$$

$$\sqrt{18}$$

$$\sqrt{9 \cdot 2}$$

$$3\sqrt{2}$$

$$6\sqrt{3x^3y} \cdot 3\sqrt{2x^5y^2}$$

$$18\sqrt{6x^8y^3}$$

$$18x^4y\sqrt{6y}$$

$$\begin{aligned}
 & 3\sqrt{12} \cdot 2\sqrt{21} \\
 & \quad \swarrow \quad \searrow \\
 & \quad 6\sqrt{252} \\
 & \quad 6\sqrt{36} \sqrt{7} \\
 & \quad 6 \cdot 6\sqrt{7} \\
 & \quad 36\sqrt{7}
 \end{aligned}$$

$$\begin{aligned}
 & 3\sqrt{4}\sqrt{3} \\
 & \quad 3 \cdot 2\sqrt{3} \\
 & \quad 6\sqrt{3} \cdot 2\sqrt{21} \\
 & \quad \quad \swarrow \quad \searrow \\
 & \quad \quad 12\sqrt{63} \\
 & \quad \quad 12\sqrt{9}\sqrt{7} \\
 & \quad \quad 36\sqrt{7}
 \end{aligned}$$

$$\begin{aligned}
 & -3\sqrt{24} \cdot 5\sqrt{20} \\
 & \quad \sqrt{4}\sqrt{6} \quad \sqrt{4}\sqrt{5} \\
 & -6\sqrt{6} \cdot 10\sqrt{5} \\
 & \quad \quad \swarrow \quad \searrow \\
 & \quad \quad -60\sqrt{30}
 \end{aligned}$$

$$\begin{aligned}
 & 2\sqrt{18} \cdot 6\sqrt{32} \\
 & \quad 2\sqrt{9} \cdot \sqrt{2} \quad 6\sqrt{16} \cdot \sqrt{2} \\
 & \quad \quad 3\sqrt{2} \quad \quad 6 \cdot 4\sqrt{2} \\
 & \quad 6\sqrt{2} \cdot 24\sqrt{2} \\
 & \quad 144 \cdot \frac{\sqrt{4}}{2} = 288
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{12} \cdot \sqrt{7} \\
 & \quad \sqrt{4}\sqrt{3} \\
 & \quad 2\sqrt{3} \cdot \sqrt{7} \\
 & \quad 2\sqrt{21}
 \end{aligned}$$

FOIL

$$(3\sqrt{5} - 2)(2 + \sqrt{3})$$

$$6\sqrt{5} + 3\sqrt{15} - 4 - 2\sqrt{3}$$

$$3x + 2x$$

$$(3 + \sqrt{7})(2 + \sqrt{6})$$

$$6 + 3\sqrt{6} + 2\sqrt{7} + \sqrt{42}$$

$$1x + x = 2x$$

$$(\sqrt{11} - \sqrt{2})^2 = (\sqrt{11} - \sqrt{2})(\sqrt{11} - \sqrt{2})$$

$$\sqrt{121} - \sqrt{22} - \sqrt{22} + \sqrt{4}$$

$$11 - 2\sqrt{22} + 2$$

$$13 - 2\sqrt{22}$$