

Topic: Adding and subtracting radicals**Question:** Simplify the expression.

$$\sqrt{3} + \sqrt{5} + \sqrt{3} + \sqrt{2}$$

Answer choices:

A $\sqrt{13}$

B $\sqrt{90}$

C $2\sqrt{3} + \sqrt{5} + \sqrt{2}$

D $\sqrt{9}$



Solution: C

When we're adding or subtracting two terms and each of them contains a square root, we can combine them only if the radicands are the same, because those are the only like terms.

Here we have two terms consisting of $\sqrt{3}$, so those terms can be combined.

$$\sqrt{3} + \sqrt{5} + \sqrt{3} + \sqrt{2}$$

$$2\sqrt{3} + \sqrt{5} + \sqrt{2}$$

Now we have one term that contains $\sqrt{3}$, one term that contains $\sqrt{5}$, and one term that contains $\sqrt{2}$. Since all three terms have different radicands (and none of the radicands can be factored, because 3, 5, and 2 are all prime numbers), there's no way to combine any of the terms, so we can't do any further simplification.



Topic: Adding and subtracting radicals**Question:** Simplify the expression.

$$2\sqrt{2} + 3\sqrt{2}$$

Answer choices:

A $5\sqrt{2}$

B $6\sqrt{2}$

C 12

D 13



Solution: A

When we're adding or subtracting, we can combine square roots only when the radicands are the same, because those are the only like terms.

Since in

$$2\sqrt{2} + 3\sqrt{2}$$

both terms contain $\sqrt{2}$, we can combine them and we get

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

$$5\sqrt{2}$$



Topic: Adding and subtracting radicals**Question:** Simplify the expression.

$$10\sqrt{3} - 6\sqrt{3}$$

Answer choices:

A 12

B $4\sqrt{3}$

C $3\sqrt{3}$

D 6



Solution: B

When we're adding or subtracting, we can only combine square roots when the value inside the radical is the same, because those are the only like terms.

Since in

$$10\sqrt{3} - 6\sqrt{3}$$

both terms contain $\sqrt{3}$, we can combine them and we get

$$(10 - 6)\sqrt{3}$$

$$4\sqrt{3}$$

