Topic: Adding mixed measures

Question: Find the sum of the mixed measures.

$$(1 \text{ yd}, 2 \text{ ft}, 7 \text{ in}) + (2 \text{ yd}, 2 \text{ ft}, 8 \text{ in})$$

Answer choices:

A 3 yd, 2 ft, 15 in

B 3 yd, 2 ft, 3 in

C 3 yd, 1 ft, 11 in

D 4 yd, 2 ft, 3 in

Solution: D

To add these mixed measures, we first add the yards, the feet, and the inches separately.

$$(1 \text{ yd}, 2 \text{ ft}, 7 \text{ in}) + (2 \text{ yd}, 2 \text{ ft}, 8 \text{ in})$$

$$(1 + 2) \text{ yd}, (2 + 2) \text{ ft}, (7 + 8) \text{ in}$$

$$3 \text{ yd}, 4 \text{ ft}, 15 \text{ in}$$

Now we need to simplify this result, and we need to do this from right to left. Since there are 12 inches in a foot, we'll express 15 inches as the sum of 12 inches and 3 inches, then rewrite 12 inches as 1 foot, and add that 1 foot to the 4 feet we've already found:

$$3 \text{ yd}, 4 \text{ ft}, 12 \text{ in} + 3 \text{ in}$$

$$3 \text{ yd}, 4 \text{ ft}, 1 \text{ ft} + 3 \text{ in}$$

$$3 \text{ yd}, (4 + 1) \text{ ft}, 3 \text{ in}$$

$$3 \text{ yd}, 5 \text{ ft}, 3 \text{ in}$$

Next, we know that there are 3 feet in a yard, so we'll express 5 feet as the sum of 3 feet and 2 feet, then rewrite 3 feet as 1 yard, and add that 1 yard to the 3 yards we've already found:

$$3 \text{ yd}, 3 \text{ ft} + 2 \text{ ft}, 3 \text{ in}$$

$$3 \text{ yd}, 1 \text{ yd} + 2 \text{ ft}, 3 \text{ in}$$

$$(3 + 1) \text{ yd}, 2 \text{ ft}, 3 \text{ in}$$

4 yd, 2 ft, 3 in

Topic: Adding mixed measures

Question: Find the sum of the mixed measures.

$$(4 \text{ hr}, 40 \text{ min}, 35 \text{ sec}) + (1 \text{ hr}, 45 \text{ min}, 50 \text{ sec})$$

Answer choices:

A $5 \text{ hr}, 5 \text{ min}, 45 \text{ sec}$

B $5 \text{ hr}, 26 \text{ min}, 25 \text{ sec}$

C $6 \text{ hr}, 5 \text{ min}, 45 \text{ sec}$

D $6 \text{ hr}, 26 \text{ min}, 25 \text{ sec}$

Solution: D

To add these mixed measures, we first add the hours, the minutes, and the seconds separately.

$$(4 \text{ hr}, 40 \text{ min}, 35 \text{ sec}) + (1 \text{ hr}, 45 \text{ min}, 50 \text{ sec})$$

$$(4 + 1) \text{ hr}, (40 + 45) \text{ min}, (35 + 50) \text{ sec}$$

$$5 \text{ hr}, 85 \text{ min}, 85 \text{ sec}$$

Now we need to simplify this result, and we need to do this from right to left. There are 60 seconds in a minute, so we'll express 85 seconds as the sum of 60 seconds and 25 seconds, then rewrite 60 seconds as 1 minute, and add that 1 minute to the 85 minutes we've already found:

$$5 \text{ hr}, 85 \text{ min}, 60 \text{ sec} + 25 \text{ sec}$$

$$5 \text{ hr}, 85 \text{ min}, 1 \text{ min} + 25 \text{ sec}$$

$$5 \text{ hr}, (85 + 1) \text{ min}, 25 \text{ sec}$$

$$5 \text{ hr}, 86 \text{ min}, 25 \text{ sec}$$

Next, we know that there are 60 minutes in an hour, so we'll express 86 minutes as the sum of 60 minutes and 26 minutes, then rewrite 60 minutes as 1 hour, and add that 1 hour to the 5 hours we've already found:

$$5 \text{ hr}, 60 \text{ min} + 26 \text{ min}, 25 \text{ sec}$$

$$5 \text{ hr}, 1 \text{ hr} + 26 \text{ min}, 25 \text{ sec}$$

$$(5 + 1) \text{ hr}, 26 \text{ min}, 25 \text{ sec}$$

6 hr, 26 min, 25 sec

Topic: Adding mixed measures

Question: Find the sum of the mixed measures.

3 days, 8 hours, 15 minutes $+$ 2 days, 15 hours, 45 minutes

Answer choices:

A 4 days, 15 hours, 15 minutes

B 5 days, 20 hours, 55 minutes

C 5 days, 23 hours, 60 minutes

D 6 days

Solution: D

To add these mixed measures, we want to add matching measures.

$$3 \text{ days}, 8 \text{ hours}, 15 \text{ minutes} + 2 \text{ days}, 15 \text{ hours}, 45 \text{ minutes}$$

$$3 \text{ days} + 2 \text{ days}, 8 \text{ hours} + 15 \text{ hours}, 15 \text{ minutes} + 45 \text{ minutes}$$

$$5 \text{ days}, 23 \text{ hours}, 60 \text{ minutes}$$

Now we need to simplify this value as much as we can, and we want to do this from right to left. There are 60 minutes in an hour, which means we can rewrite the value for minutes, and then simplify.

$$5 \text{ days}, 23 \text{ hours}, 1 \text{ hour}$$

$$5 \text{ days}, 23 \text{ hours} + 1 \text{ hour}$$

$$5 \text{ days}, 24 \text{ hours}$$

Next, we know that there are 24 hours in a day, which means we can rewrite the value for hours, and then simplify.

$$5 \text{ days}, 1 \text{ day}$$

$$5 \text{ days} + 1 \text{ day}$$

$$6 \text{ days}$$