Expressions & Equations 7.EE.A.1-2

Use properties of operations to generate equivalent expressions.

1. Which expressions are equivalent to $3\frac{1}{4} - \left(-\frac{5}{8}\right)$?

A. $3\frac{1}{4} - \left(\frac{5}{8}\right)$

B. $3\frac{1}{4} + \left(\frac{5}{8}\right)$

C. $3\frac{1}{4} + \left(-\frac{5}{8}\right)$

D. $3\frac{1}{4} + \left(+\frac{5}{8}\right)$

E. $-3\frac{1}{4} + \left(-\frac{5}{8}\right)$

F. $-3\frac{1}{4} + \left(+\frac{5}{8}\right)$

2. Which expressions are a factor of $-48xyz - 24xy + 40xyz$?

Select **all** that apply.

A. 4

B. 24

C. $3x$

D. $8y$

E. $2xy$

F. $6xy$

G. xyz

3. A garden is 15 feet long by 5 feet wide. The length and width of the garden will each be increased by the same number of feet. This expression represents the perimeter of the larger garden:

$$(x + 15) + (x + 5) + (x + 15) + (x + 5)$$

Which expression is equivalent to the expression for the perimeter of the larger garden?

Select **all** that apply.

A. $4x + 40$

B. $2(2x + 20)$

C. $2(x + 15)(x + 5)$

D. $4(x + 15)(x + 5)$

E. $2(x + 15) + 2(x + 5)$

4. Indicate whether each expression is equivalent to $\frac{1}{2}x-1$, equivalent to $x-\frac{1}{2}$, or not equivalent to $\frac{1}{2}x-1$ or $x-\frac{1}{2}$.

Expression	Equivalent to $\frac{1}{2}x-1$	Equivalent to $x-\frac{1}{2}$	Not Equivalent to $\frac{1}{2}x-1$ **or** $x-\frac{1}{2}$
$\frac{2}{3}\left(\frac{3}{4}x-\frac{3}{2}\right)$	☐	☐	☐
$(2x+1)-\left(x+\frac{3}{2}\right)$	☐	☐	☐

5. Sharon's dog weighs *p* pounds. Jen's dog weighs 20% more than Sharon's dog. Which expressions represent the weight, in pounds, of Jen's dog? Select each correct answer.

A. ☐ 0.25p

B. ☐ 1.2p

C. ☐ p + 0.2

D. ☐ p + 1.2

E. ☐ p + 0.2p

6. Determine which expression is equivalent to $\frac{3}{4}-x\left(\frac{1}{2}-\frac{5}{8}\right)+\left(-\frac{3}{8}x\right)$

A. $-\frac{3}{4}x$

B. $\frac{1}{2}x$

C. $\frac{1}{8}-\frac{7}{8}x$

D. $\frac{3}{4}-\frac{1}{4}x$

7. Rodney decides to pay a $200 fee in 3 payments. The first payment is 10% of the original fee. The second payment is 25% of the original fee. Which expressions represent the amount of money for the third payment? Select all that apply.

- ☐ 200 - 0.25(200)
- ☐ 200 - 0.35(200)
- ☐ 200 - 0.65(200)
- ☐ 200 - 0.75(200)
- ☐ 0.25(200)
- ☐ 0.35(200)
- ☐ 0.65(200)
- ☐ 0.75(200)

8. Two students determined the value of this expression.

-2.5(1.4 + 3.1) + 6.9(-4.3)

These are the steps each student used:

Student P	Student Q
Step 1: −3.5 + 7.75 + 6.9(−4.3)	Step 1: −3.5 − 7.75 + 6.9(−4.3)
Step 2: −3.5 + 7.75 − 29.67	Step 2: −3.5 − 7.75 − 29.67
Step 3: 7.75 − 3.5 − 29.67	Step 3: −(3.5 − 7.75 − 29.67)
Step 4: −25.42	Step 4: −(−33.92)
	Step 5: 33.92

- Describe any errors made by Student P.
- Describe any errors made by Student Q.
- Show a complete set of correct steps to determine the value of the expression.