

MathXL Question and Answers

1. Find the set $A \cup B$

$$U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$$

$$A = \{2, 4, 6, 8\}$$

$$B = \{5, 6, 7\}$$

Solution:

$$A \cup B = \{2, 4, 5, 6, 7, 8\}$$

2. A passbook savings account has a rate 9%. Find the effective annual yield, rounded to the nearest tenth of a percent if the interest is compounded semiannually.

Solution: Here rate of interest $r = 9\% = 0.09$, $n = 2$ (as compounded semiannually)

$$\begin{aligned} \text{Hence, the effective annual yield} &= \left(1 + \frac{r}{n}\right)^n - 1 \\ &= \left(1 + \frac{0.09}{2}\right)^2 - 1 \\ &= (1 + 0.045)^2 - 1 \\ &= (1.045)^2 - 1 \\ &= 1.092 - 1 \\ &= 0.092 \end{aligned}$$

Hence, the effective annual yield = 9.2%

3. The principal P is borrowed at a simple interest rate r for a period of time t . Find the simple interest owed for the use of the money. Assume 360 days in a year.

$$P = \$ 260, r = 3\%, t = 2 \text{ years.}$$

Solution:

$$\text{Simple interest (I)} = P \times r \times t = 260 \times 0.03 \times 2 = 15.6$$

Thus, interest owed = \$15.6

4. Solve the following inequality and graph the solution set on a number line.

$$-6x \leq -54$$

Solution:

Here, the given inequality is

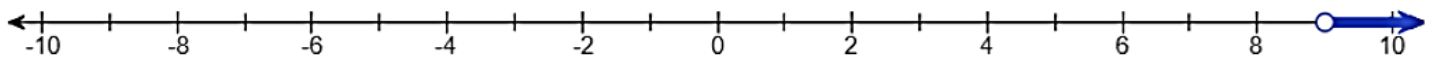
$$-6x \leq -54$$

$$\Rightarrow 6x \geq 54$$

$$\Rightarrow \frac{6x}{6} \geq \frac{54}{6} \quad (\text{Dividing both side by 6})$$

$$\Rightarrow x \geq 9$$

Hence, the number line of the solution set is



5. Find (i) the mean, (ii) the deviation from the mean for each data item; and (iii) the sum of the deviations in part (ii) for the following group of data items.

2.50, 3.60, 2.70, 2.30, 3.90

Solution:

$$(i) \text{ Mean} = \frac{2.50 + 3.60 + 2.70 + 2.30}{5} = \frac{15}{5} = 3$$

(ii) Deviations from each data item are shown below

Data values	2.50	3.60	2.70	2.30	3.90
Deviations	$2.50 - 3 = -0.5$	$3.60 - 3 = 0.6$	$2.70 - 3 = -0.3$	$2.30 - 3 = -0.7$	$3.90 - 3 = 0.9$

(iii) Sum of the deviations in part (ii) is

$$(-0.5 + 0.6 - 0.3 - 0.7 + 0.9) = 0$$