ANSWER KEY

1	(b)I and IV
2	(c) $x^2 + x = 1$
3	(a) $x + 5 = 0$
4	(c) infinitely many solutions
5	(b) (0, −9)
6	(b) (2, 3)
7	(b) 17 units.
8	(d) (0,2)
9	(b) Both A and R are true, but R is **not** the correct explanation of A
10	(a) Both A and R are true and R correctly explains A

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To determine the value of k for which the linear equation

$$2x + ky = 8$$

has the solution $(x, y) = (2, 1)$, simply **substitute** those values into the equation:

$$2(2) + k \cdot (1) = 8$$

This gives:

$$4 + k = 8$$

Solving for k:

$$k = 8 - 4 = 4$$

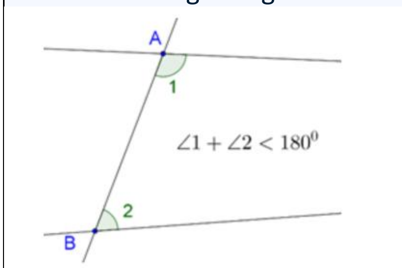
So, $\boxed{k = 4}$.

12(A) If equals be subtracted from equals, the remainders are equal.

Things which coincide with one another are equal to one another.

Or

12(B) If a straight line falling on two straight lines makes the interior angles on the same side less than two right angles, the straight lines, if produced indefinitely, will meet on that side on which the angles are less than two right angles.



13 (a)

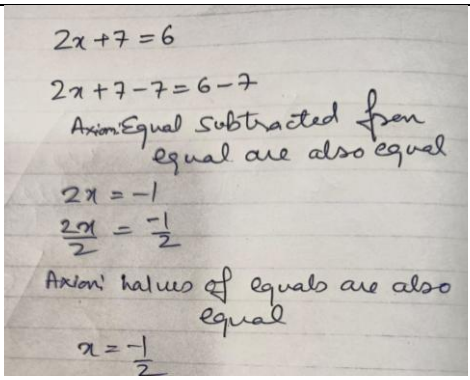
Applying this to $(-3, -3)$:

- The x-coordinate remains -3.
- The y-coordinate becomes $-(-3) = 3$.

So the reflected image is $\boxed{(-3, 3)}$.

(b)(0,-3)

<table>
<tr><td>14(A)

14(B)</td><td>


$2x+7=6$

$2x+7-7=6-7$

Axiom: Equal subtracted from equal are also equal

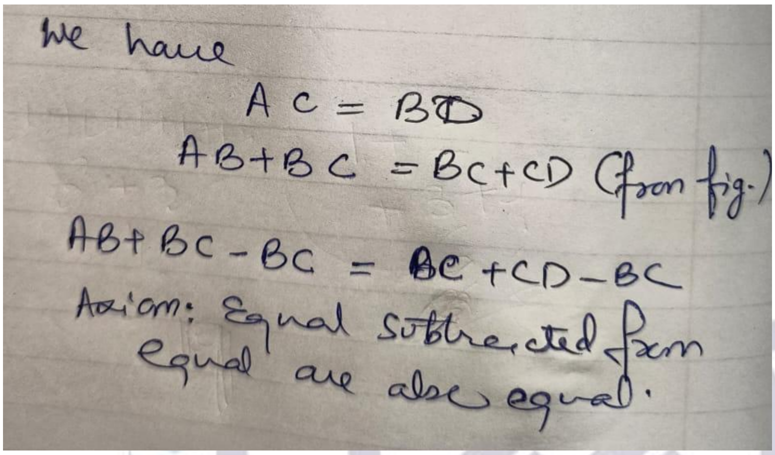
$2x=-1$

$\frac{2x}{2}=\frac{-1}{2}$

Axiom: halves of equals are also equal

$x=\frac{-1}{2}$

Or



We have

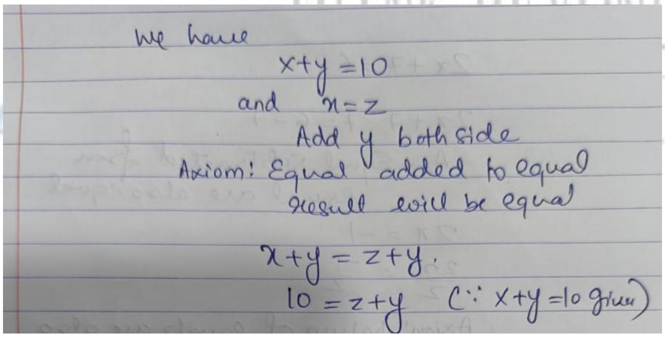
$AC = BD$

$AB+BC = BC+CD$ (from fig.)

$AB+BC-BC = BC+CD-BC$

Axiom: Equal subtracted from equal are also equal.

Hence AB= CD.
</td></tr>
<tr><td>15</td><td>(a)First Equation : 3x+4y=53
Second Equation : 4x-y=11
(b) Two different solutions of the equation x=4y: (4,1),(8,2)</td></tr>
<tr><td>16</td><td>(i) Euclid
(ii)Greece
(iii) (a)



We have

$x+y=10$

and $x=z$

Add y both side

Axiom: Equal added to equal result will be equal

$x+y=z+y$.

$10=z+y$ ($\because x+y=10$ given)

(iii)(b)
</td></tr>
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	Given: $\angle 1 = \angle 3$, $\angle 2 = \angle 4$, $\angle 3 = \angle 4$. As we have $\angle 1 = \angle 3$ & $\angle 3 = \angle 4$ $\Rightarrow \angle 1 = \angle 4$ Axiom: as things equal to same thing are equal to one another. also $\angle 2 = \angle 4$ given Hence $\angle 1 = \angle 2$ (using axiom stated above).
17	(i) Equation for total number of eyes Each bird and each deer has 2 eyes, so: 2x+2y=12002x + 2y = 12002x+2y=1200 This is the equation for eyes (ii) Equation for total number of legs Birds have 2 legs each, deer have 4, so: 2x+4y=17002x + 4y = 17002x+4y=1700 This is the equation for legs (iii) Solve for x and y Simplify the eye-equation by dividing by 2: x+y=600... (1) The legs equation stays: 2x+4y=1700 Divide that by 2: x+2y=850... (2) Number of birds x=350x = 350x=350 Number of deer y=250y = 250y=250
18	**Linear Equation for the Auto-Rickshaw Fare** Let: • x = total distance traveled (in km) • y = total fare (in ₹) Fare structure: • ₹10 for the first **kilometer** • ₹4 per km for **each additional kilometer** So: $$y = 10 + 4(x - 1)$$ Simplify: $$y = 4x + 6$$

Three Solution Points

We'll find three valid (x, y) pairs:

1. **When $x = 1$** (just the first km):

$$y = 4 \cdot 1 + 6 = 10 \quad \Rightarrow \quad (1, 10)$$

2. **When $x = 2$:**

$$y = 4 \cdot 2 + 6 = 14 \quad \Rightarrow \quad (2, 14)$$

3. **When $x = 3$:**

$$y = 4 \cdot 3 + 6 = 18 \quad \Rightarrow \quad (3, 18)$$

These three points lie on the line $y = 4x + 6$.

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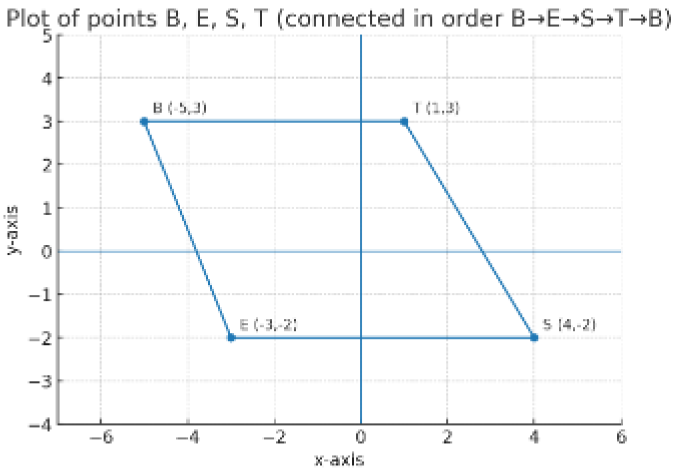
- B(–5, 3): x is negative, y is positive → **Quadrant II**
- E(–3, –2): Both x and y are negative → **Quadrant III**
- S(4, –2): x is positive, y is negative → **Quadrant IV**
- T(1, 3): Both x and y are positive → **Quadrant I**



We have trapezium shape quadrilateral.

End