Name: **Answer**
period#_____ **key(1)**

1. Evaluate $u + xy$, for $u = 18$, $x = 10$, and $y = 8$.
   a. 188
   b. 36
   c. 98 ⟵
   d. 224

$u + xy$
$18 + 10 \cdot 8$
$18 + 80$
$18 + 800 = 98$

2. $4(20 + 12) \div (4 - 3)$
   a. 29
   b. 80
   c. 128 ⟵
   d. 92

PEMDAS
$4(20 + 12) \div (4 - 3)$
$4(32) \div (1)$
$128 \div 1 = \boxed{128}$

3. Subtract $2\frac{5}{6} - 1\frac{3}{4}$
   a. 2
   b. $\frac{1}{12}$
   c. $1\frac{1}{12}$ ⟵
   d. $1\frac{1}{5}$

① improper fraction
$\frac{17}{6} \cdot 2 - \frac{7}{4} \cdot 3$

② common denominator
$\frac{34}{12} - \frac{21}{12} = \frac{13}{12} = \boxed{1\frac{1}{12}}$

4. $\frac{6}{12} \cdot \left(\frac{7}{9}\right)$
   a. $\frac{13}{21}$
   b. $\frac{13}{108}$
   c. $1\frac{5}{18}$
   d. $\frac{7}{18}$ ⟵

$\frac{6}{12} \cdot \frac{7}{9} = \frac{42 \div 3}{108 \div 3} \quad \frac{14 \div 2}{36 \div 2}$

$\frac{7}{18}$

5. Tracey put $3500 into an investment yielding 4.5% annual interest. She left the money in for 8 years. How much interest does she get in those 8 years? ⟵ change to decimal
   a. $1260 ⟵
   b. $2240
   c. $4760
   d. $1860

$I = p \cdot r \cdot t$
$I = 3500 \cdot (.045)(8) = ^\$1260$

6. The total cost to rent a row boat is $18 times the number of hours the boat is used. Write an equation to model this situation if c = total cost and h = number of hours.
   a. $c = 18h$ ⟵
   b. $c - 18 = h$
   c. $h = 18c$
   d. $c = \frac{h}{18}$

$C = 18 \times h$

7. Which fractions are equivalent to $\frac{2}{3}$? **Select all that apply.**
   a. $\frac{4}{6}$ ⟵ $\div 2 \quad \frac{2}{3}$
   b. $\frac{8}{15}$
   c. $\frac{12}{18}$ ⟵ $\frac{12 \div 3}{18 \div 3} \quad \frac{4 \div 2}{6 \div 2} \quad \frac{2}{3}$
   d. $\frac{22}{33}$ ⟵ $\div 11 \quad \frac{2}{3}$

8. Which questions will have a positive answer? **Select all that apply.**
   a. $-9 + (-3) =$
   b. $6 + (-4) = 10$ ⟵
   c. $5 \cdot (-2) = -10$
   d. $\frac{-27}{-3} = 9$ ⟵
   e. $-9 + (-15) =$

9. You tell your parents that you will pay the 15% tip for dinner. The bill was $130.56. You have $20.
   a) Do you have enough to pay the tip?
   b) How much should the tip be?
   a. yes $19.60 ⟵ $130.56 (.15) = 19.58$
   b. yes $15.75
   c. no $22.30
   d. no $20.15

10. Which expression is NOT equal to the other expressions?
   a. $5(2x - 4) + x - 1$ $10x - 20 + x - 1 \quad 11x - 21$
   b. $7x - 5 + 4(x - 4)$ $7x - 5 + 4x - 16 \quad 11x - 21$
   c. $10(2x - 3) - 9(x - 1)$ $20x - 30 - 9x + 9 \quad 11x - 21$
   d. $2x + 20 + 8x - 41$ ⟵ $10x - 21$

11. Michelle wants to earn $900 selling 22 knit scarves. She wants to sell each scarf for $4 less than her competitor. If x is the price charged by her competitor, which equation models the situation?
   a. $2(22) + 2x = 900$
   b. $22x = 900$
   c. $22(x - 4) = 900$ ⟵ $22(x - 4) = 90$
   d. $22 + 4x = 900$

Solve the equation.

(handwritten) $10x+2=72$
$-2 \quad -2$

12. $10x + 2 = 72$

a. 74
b. 4
c. 7
d. 70

(handwritten) $\dfrac{10x}{10}=\dfrac{70}{10}$

(handwritten, boxed) $x=7$

13. The perimeter of a rectangular garden is 860 ft. The two short sides of the garden are each 30 ft long. You are asked to find the length of the other sides. Which equation models this situation?

a. $30 + x = 860$
b. $2(30) + 2x = 860$
c. $30(x - 2) = 860$
d. $30 + 2x = 860$

(handwritten) $2(30)+2x=860$

14. Solve $z = \dfrac{9}{13} c$ for c.

a. $c = \dfrac{9}{13} z$

b. $c = -\dfrac{13}{9} z$

c. $c = -\dfrac{9}{13} z$

d. $c = \dfrac{13}{9} z$

(handwritten) $\dfrac{13z}{9}=\dfrac{9c}{9}$

$\dfrac{13z}{9}=c$

Solve:

15. $|6x - 5| = 2$

a. $\dfrac{2}{3}, \dfrac{1}{3}$

b. $\dfrac{7}{6}, \dfrac{1}{2}$

c. $-\dfrac{7}{6}, \dfrac{1}{2}$

d. $-2, \dfrac{1}{3}$

(handwritten) $6x-5=2 \quad 6x-5=-2$
$\dfrac{6x}{6}=\dfrac{7}{6}$
$x=\dfrac{7}{6}$

16. $8x - 9 = x + 9$

a. $\dfrac{18}{7}$

b. $-\dfrac{18}{7}$

c. $\dfrac{7}{18}$

d. $\dfrac{1}{8}$

(handwritten) $7x-9=9$
$+9 +9$
$\dfrac{7x}{7}=\dfrac{100}{7}$
$x=\dfrac{100}{7}$

17. Simplify $6x + 5(x - 7)$.

a. $11x - 35$
b. $11x + 35$
c. $11x - 7$
d. $x - 35$

(handwritten) $6x+5x-35$
$11x-35$
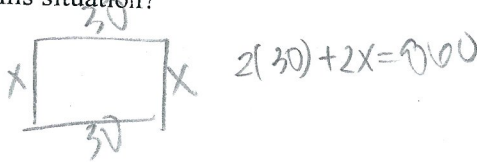
18. You are driving to visit a friend in another state who lives 440 miles away. You are driving 55 miles per hour and have already driven 275 miles. Write and solve an equation to find how much longer in hours you must drive to reach your destination.

a. $55h + 275 = 440; h = 3$
b. $55h - 275 = 440; h = 13$
c. $440h - 275 = 55; h = 110$
d. $55h + 275h = 440; h = 1.\overline{3}$
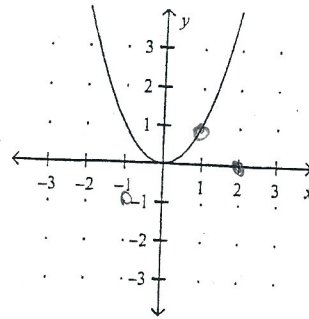
(handwritten) $55h+275=440$

19. Which point is on the graph (above) of $y = x^2$?

a. $(-1, -1)$
b. $(-5, -1)$
c. $(2, 0)$
d. $(1, 1)$

20. Which points make the equation $4x + 2y = 4$ true? Select all that apply.

a. $(1, 2)$
b. $(0, 2)$
c. $(1, 0)$
d. $(2, -2)$

(handwritten) $4+4=4$
$0+4=4$
$4\cdot 1+0$
$8-4=$

21. Which equation has a graph that passes through points $(1, 6)$ and $(-3, -2)$?

a. $y - 2x = 4$
b. $8x - 3y = -18$
c. $x^2 + y^2 = 26$
d. $y = -3x^2 + 9$

(handwritten) $-2+6$

22. Find the solution of $y = 6x + 1$ for $x = 5$.

a. $(5, 31)$
b. $(-29, 5)$
c. $(5, 36)$
d. $(5, \dfrac{2}{3})$

(handwritten) $y = 6\cdot5+1$
$30+1=31$

Graph the function.

↻ down 2

23. $y = x^2 - 2$

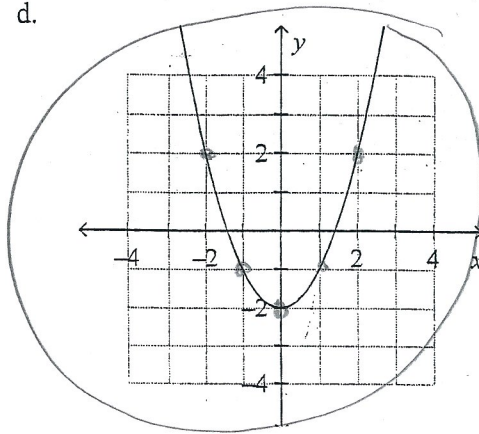| x	y
2	2
1	-1
0	-2
-1	-1
-2	2

a.

b.

c.
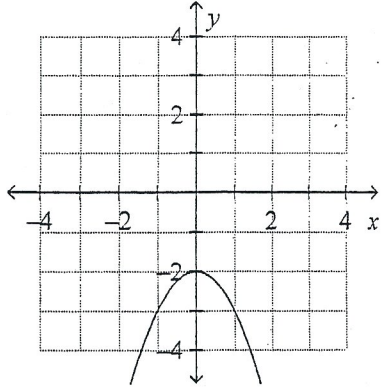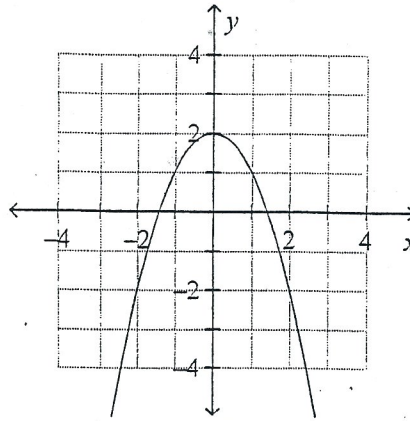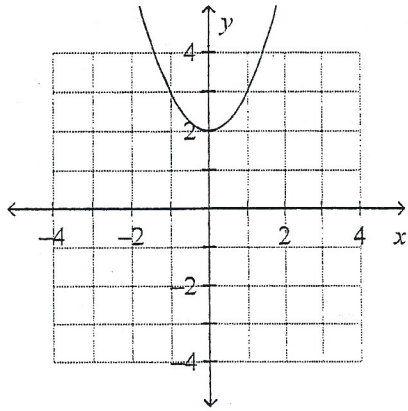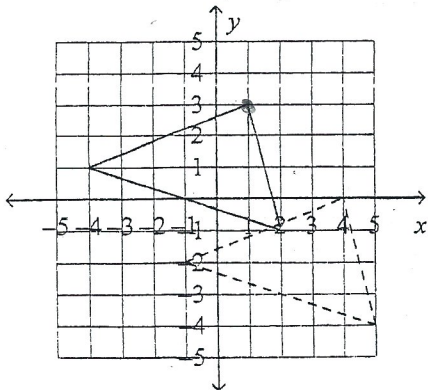

d.
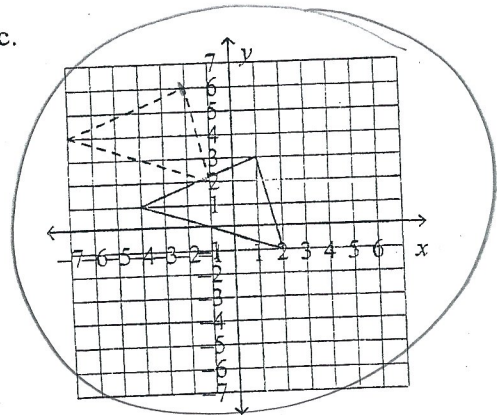

24. Which translation from solid-lined figure to dashed-lined figure is given by $(x, y) \rightarrow (x - 3, y+3)$?
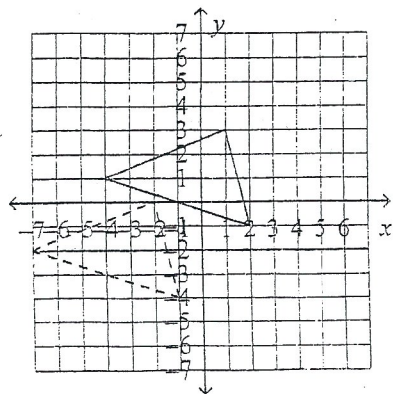
1,3   1-3 3+3

2,6

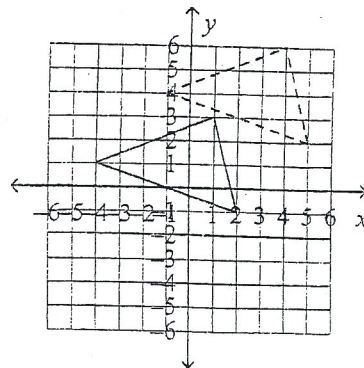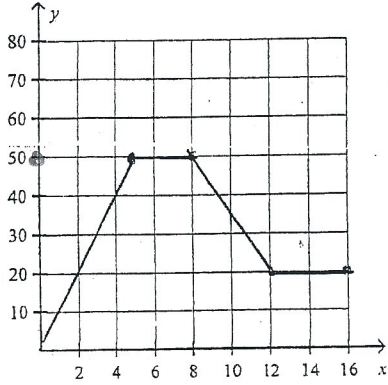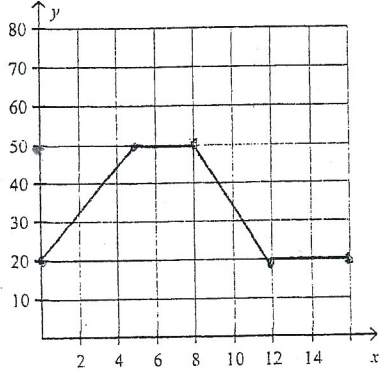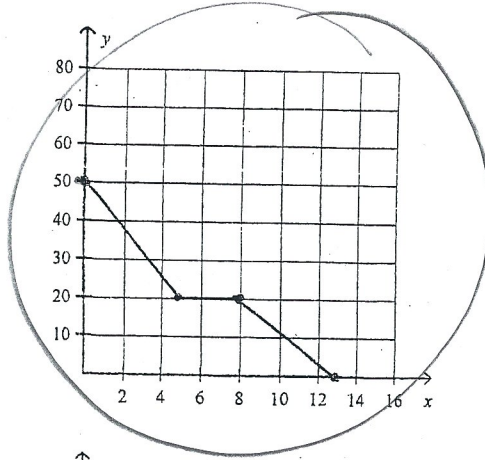a.

b.

c.

d.

25. starts

Which graph below could represent a car traveling (at 50 mph) slows down to 20 mph over the first 5 seconds, and then remains at that speed for 3 seconds, then slowly came to a stop after 5 seconds.
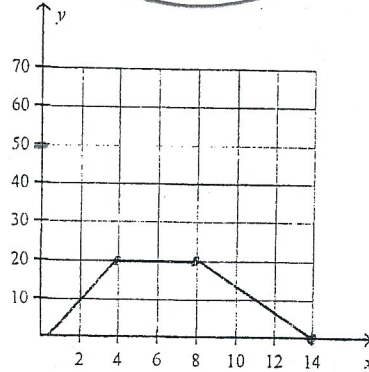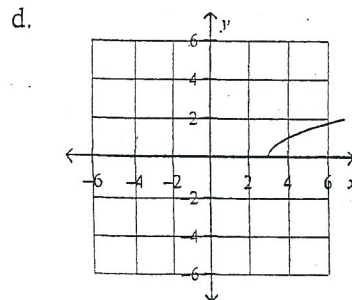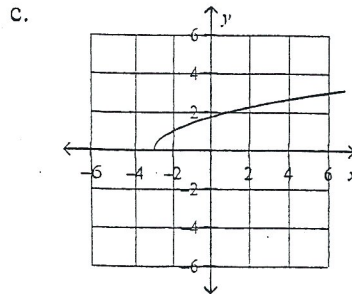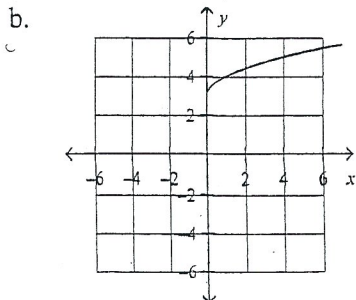
a.

c.

b.

d.

Match the function with its graph.

26. $y = \sqrt{x} - 3$ down 3

a.

c.

b.

d.
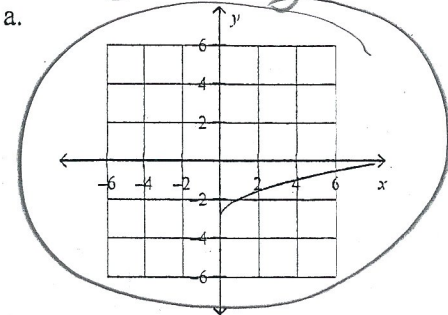
27. Write $y = \frac{2}{3}x + 7$ in standard form using integers.

a. $-2x + 3y = 21$
b. $3x - 2y = 21$
c. $-2x - 3y = 21$
d. $-2x + 3y = 7$

$$\left(y = \frac{2}{3}x + 7\right)^3$$

$$3 \cdot y = 3 \cdot \frac{2}{3}x + 3 \cdot 7$$

$$3y = 2x + 21$$
$$-2x \quad -2x$$

$$-2x + 3y = 21$$

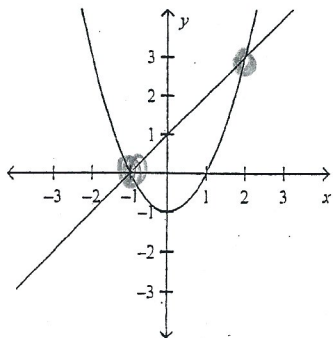**28.** Find the value of y for $2x - 3y = 8$, when x = -2.

a. 2
b. -2
c. -4
d. 4

$$2(-2) - 3y = 8$$
$$-4 - 3y = 8$$
$$+4 \qquad +4$$
$$-3y = 12$$
$$\frac{-3y}{-3} = \frac{12}{-3}$$

$$\boxed{y = -4}$$

29. How many intersection points are there for the graphs (above) of $y = x + 1$ and $y = x^2 - 1$

a. 1
b. 2
c. 3
d. 0

$$y - y_1 = m(x - x_1)$$

Find slope

30. Write an equation of the line, in point-slope form, that passes through the points $(-7, 2)$ and $(3, -2)$. Use $(-7, 2)$ as the point (x_1, y_1).

$$y - 2 = -\frac{2}{5}(x + 7)$$

a. $y - 2 = -\frac{2}{5}(x + 7)$
b. $y - 2 = -\frac{5}{2}(x + 7)$
c. $y - 7 = -\frac{2}{5}(x + 2)$
d. $y - 7 = -\frac{5}{2}(x + 2)$

$$\overset{x_1 \ y_1}{(-7, 2)} \quad \overset{x_2 \ y_2}{(3, -2)}$$

$$m = \frac{-2 - 2}{3 + 7} = \frac{-4}{10} = \boxed{-\frac{2}{5}} \quad m$$

31. Write an equation of the line that passes through $\left(-5, -1\right)$ and is parallel to the line $y = 4x - 6$.

$$\overset{x_1 \ y_1}{}$$

a. $y = 4x + 19$
b. $y = 4x - 6$
c. $y = -5x + 19$
d. $y = -5x - 6$

same slope $m = 4$

32. Write an equation of the line that goes through the point $\left(3, 7\right)$ and is perpendicular to the line $y = -3x + 6$.

$$\overset{x_1 \ y_1}{}$$

a. $y = \frac{1}{3}x + 6$
b. $y = -\frac{1}{3}x + 6$
c. $y = 3x + 2$
d. $y = -3x + 16$

flip fraction & change sign

$$m = \frac{1}{3}$$

$$y - y_1 = m(x - x_1)$$
$$y - 7 = \frac{1}{3}(x - 3)$$
$$\frac{3 \cdot 7}{1} = -1$$
$$y - 7 = \frac{1}{3}x - 1$$
$$+7 \qquad +7$$
$$y = \frac{1}{3}x + 6$$

31) $y - y_1 = m(x - x_1)$
$$y + 1 = 4(x + 5)$$
$$y + 1 = 4x + 20$$
$$-1 \qquad -1$$
$$\boxed{y = 4x + 19}$$

33. Hannah babysits to earn money.

* She charges $6.50 to babysit for the first hour.

* She charges $5.75 for each additional hour.

* Let n equal the number of hours after the first hour.

Which expression represents how much Hannah charges?

$6.50 + 5.75n$

a. 12.25n

b. 6.50 + 5.75n

c. 6.50n + 5.75

d. 6.50n + 5.75n

34. Draw a number line. Label the number halfway between -1 and 0 point A. Point B is a number between 2 and 3. Mark the approximate location of each expression.

a. Point A

b. Point B

c. A×B

d. A+B

$A \times B = -\frac{1}{2} \times \frac{5}{2} = \frac{-5}{4}$

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

35. Susan is making a large batch of granola to sell at a school fundraiser. She needs to buy walnuts and almonds to make the granola. The price of walnuts is $12 for 4 bags and the price of almonds is $9 for 3 bags. She ends up buying $45 worth of walnuts and almonds. Which equation represents the relationship between the number of bags of walnuts, x, and the number of bags of almonds, y, that Susan bought at the store?

a. 4x + 4y = 45

b. 3x + 3y = 45

c. 4x + 3y = 45

d. 3x + 2y = 45

walnut $\frac{\$12}{4} = \$3$ per bag

almonds $\frac{\$9}{3} = \$3$ per bag

$3x + 3y = 45$

36. Solve : 2 – 3(x – 1) = 13

Step 1: 2 – 3x – 1 = 13

Step 2: 1 – 3x = 13

Step 3: 13(3x)=– 13(12)

Step 4: x = -4

$2 - 3X + 3 = 13$

Which is the first incorrect step in the solution shown above?

a. Step 1

b. Step 2

c. Step 3

d. Step 4

37. Martha has $180. She needs a total of $2,000 to start an account. She earns $60 per day working, of which she saves $50. Which equation can she use to determine the number of days, d, she needs to work to reach her goal of $2,000?

a. 2,000 = 60d + 180

b. 2,000 = 60d - 180

c. 2,000 = 50d + 180

d. 2,000 = 50d – 180

$180 + 50d = 2,000$

38. Select yes or no to indicate whether each ordered pair is a point of intersection between the line $y = x + 5$ and the parabola $y = x^2 + 3x - 10$.

a. (-5,0) yes or no

b. (3,8) yes or no

c. (5,10) yes or no

$y = x + 5$ $y = x^2 + 3x - 10$

$0 = -5 + 5$ $0 = (5)^2 + 3(-5) - 10$

$0 = 0$ $25 - 15 - 10$

✓ 0 ✓

$y = x + 5$ $8 = 3^2 + 3(3) - 10$

$8 = 3 + 5$ $9 + 9 - 10$

✓ $8 = 18 - 10$

$10 = 5 + 5$
$10 = 10$
✓

$10 = 5^2 + 3(5) - 10$
$25 + 15 - 10$
$10 \neq 40 - 10$