Name : ..Answers....................... Date : / 11 / 2025

Subject: practise worksheet 3   Unit 3   Grade : 6 (   )

Q1) Simplify each expression by combining like terms.

a) $3x + 8x =$ ___$11x$___

b) $7a - 2a + 5 =$ ___$5a + 5$___

c) $10y + 4 - 6y =$ ___$4y + 4$___

d) $5m + 2n + 3m - n =$ ___$8m + n$___

e) $5x \times 3x =$ ___$15x^2$___

f) $8a \times 2b =$ ___$16ab$___

g) $12y \div 4 =$ ___$3y$___

h) $9m \times 6m =$ ___$54m^2$___

i) $8a + 5b + 2a - 3b =$ ___$10a + 2b$___

j) $6a + 15 - 4a + 5 =$ ___$2a + 20$___

k) $9y - 2 + 4y + 8 =$ ___$13y + 6$___

l) $3x \times 7x =$ ___$21x^2$___

Q2) Complete this addition <u>pyramid</u>.

	$17x + 10$		
	$20x + 5$	$-3x + 5$	
$20x$	5	$-3x$	

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Q3) a) Complete this multiplication pyramid.

```
        3x³y
     3x²    xy
   3x     x      y
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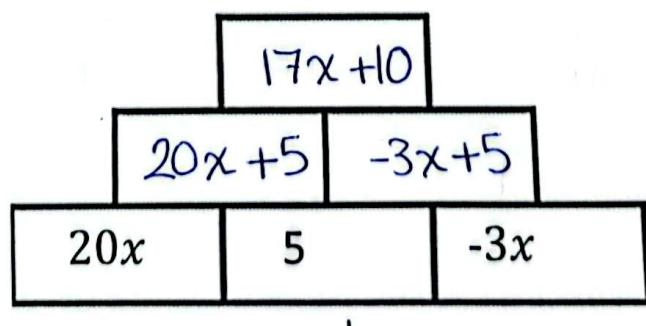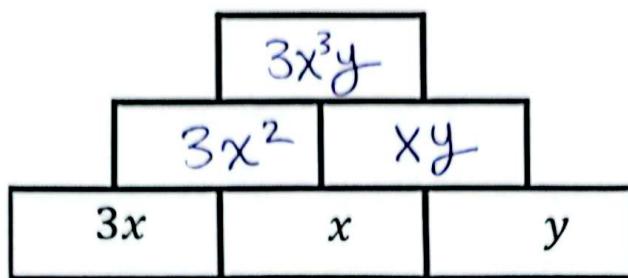
b) Complete this multiplication pyramid.

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        −18x²
      6x     −3x
   −2x    -3     x
```
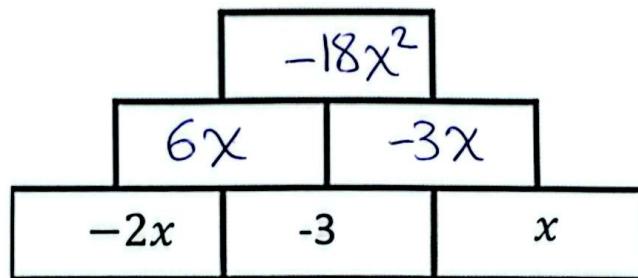
Q4) Complete this algebraic pyramid.

Remember, you find the expression in each block by <u>adding</u> the expressions in the two blocks below it.

```
          20a + 32b
      5a + 6b    15a + 26b
   3a + 4b   2a + 2b    13a + 24b
3a + 3b    b      2a + b     11a + 23b
```

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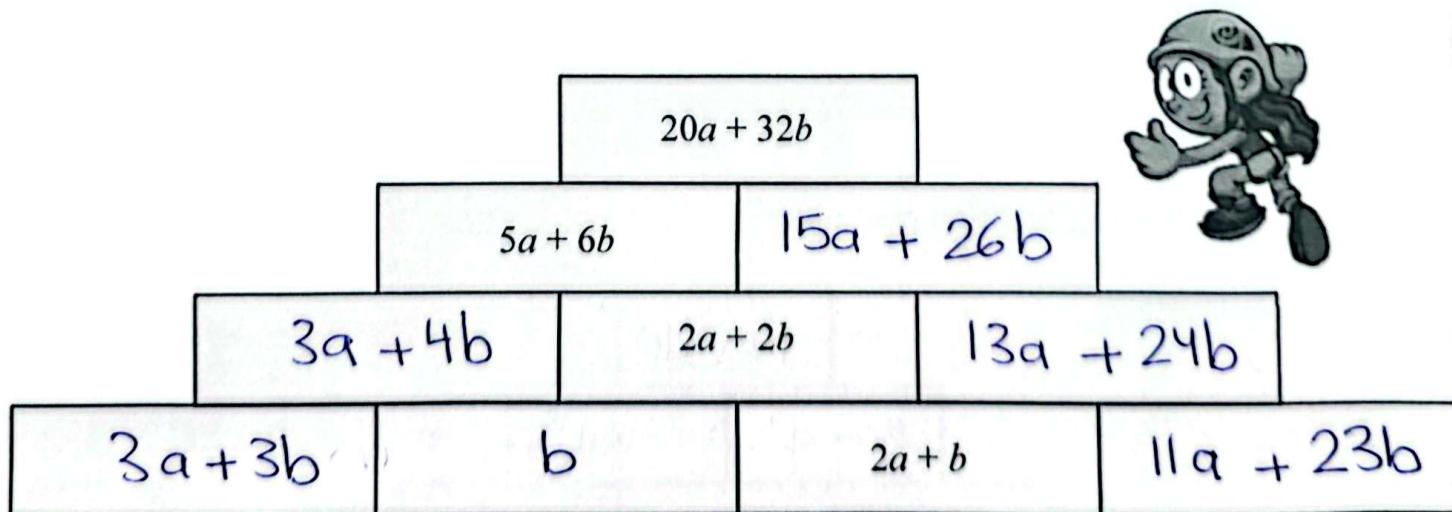
Q5) Write each as an expression.

    a) Seven more than four times M → $4M + 7$

    b) Twelve less than N → $N - 12$

    c) Half of P plus 8 → $\frac{P}{2} + 8$

    d) Q divided by 5, then increased by 2 → $\frac{Q}{5} + 2$

    e) Triple R, then subtract 6 → $3R - 6$

    f) The sum of two times S and 7 → $2s + 7$

    g) Five more than the product of 3 and X → $3X + 5$

    h) Y minus 4 → $Y - 4$

    i) Twice A plus 10 → $2A + 10$

    j) Z divided by 2, then subtract 3 → $\frac{Z}{2} - 3$

    k) Four times B increased by 9 → $4B + 9$

    m) Triple D plus 5 → $3D + 5$

    n) E divided by 3, then increased by 4 → $\frac{E}{3} + 4$

    o) Twice F minus 7 → $2F - 7$

Q6) A woman is m years old.

    a) How old was she 8 years ago? $m - 8$

    b) Her brother is 5 years older than she is. How old is he? $m + 5$

    c) Her father is three times her age. How old is he? $3m$

Q7) A baker bakes c cakes.

a) He sells 7 cakes. How many are left? $c - 7$

b) He bakes double the remaining cakes. How many does he have now?

$2(c-7)$

c) He gives away 5 cakes to charity. How many does he have left?

$2(c-7) - 5$

Q7) Write an expression for the output of the function machine.

a)

$$x \longrightarrow \boxed{+4} \longrightarrow \boxed{\times 3} \longrightarrow 3(x+4)$$

b)

$$Q \longrightarrow \boxed{\div 6} \longrightarrow \boxed{-10} \longrightarrow \frac{Q}{6} = 10$$
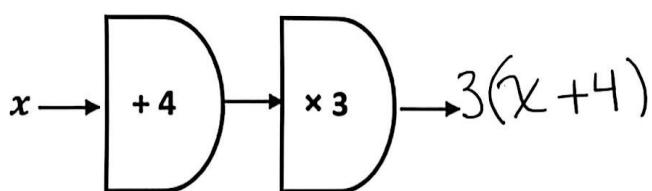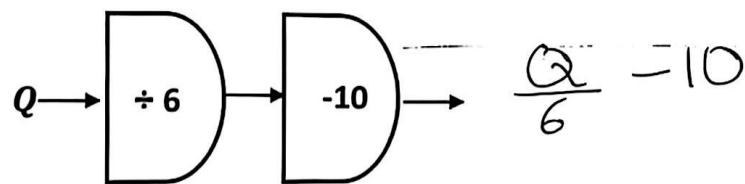
Q8) The formula for converting a temperature from Fahrenheit (F) to Celsius (C) is:

$$C = \frac{5(F - 32)}{9}$$

Convert these temperatures into °C:

a) 50°F

$$C = \frac{5 \times (50 - 32)}{9}$$
$$C = \frac{5 \times 18}{9}$$
$$C = \frac{90}{9}$$
$$\boxed{C = 10}$$

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b) 68°F

$$C = \frac{5 \times (68 - 32)}{9}$$
$$C = \frac{5 \times 36}{9}$$
$$C = \frac{180}{9}$$
$$\boxed{C = 20}$$

Q9) Work out the **value** of each expression.

a) $5x + 3y$ when $x = 6$ and $y = 4$

$5 \times 6 + 3 \times 4$
$30 + 12 = \boxed{42}$

b) $7a - 2b$ when $a = 10$ and $b = 3$

$7 \times 10 - 2 \times 3$
$70 - 6 = \boxed{64}$

c) $m \div 4$ when $m = 36$

$36 \div 4 = \boxed{9}$

d) $18 \div p - 5q$ when $p = 6$ and $q = 2$

$18 \div 6 - 5 \times 2$ $\rightarrow$ $3 - 10 = \boxed{-7}$
$3 - 5 \times 2$

e) $9t - 4u + 6$ when $t = 7$ and $u = 3$

$9 \times 7 - 4 \times 3 + 6$
$63 - 12 + 6 = 51 + 6 = \boxed{57}$

f) $v \div 2 + 5w$ when $v = 20$ and $w = 4$

$20 \div 2 + 5 \times 4$
$10 + 20 = \boxed{30}$

Q10) a) A taxi charges \$5 per kilometer. Write a formula connecting the total fare, F, in dollars, with the number of kilometers driven, k.

$$\underline{ F = 5k }$$

b) A loaf of bread costs \$2.50. Write a formula connecting the total cost, C, in dollars, with the number of loaves bought, n.

$$\underline{ C = 2.50n }$$

c) Lina has \$20. Write a formula to calculate the amount of money Lina has left, L, in \$, after spending x.

$$\underline{ L = 20 - x }$$

Q11) Expand the brackets.

a) $5(x+8)$

$5x + 40$

b) $9(2y-3)$

$18y - 27$

c) $8(2m+9)$

$16m + 72$

d) $7(5p-2x)$

$35p - 14x$

e) $3x(x+6b)$

$3x^2 + 18bx$

f) $5y(2y-4)$

$10y^2 - 20y$

c) $-7(2p+9)$

$-14p - 63$

d) $-6(5y-4)$

$-30y + 24$

e) $x(x+b)$

$x^2 + bx$

f) $-8y(2y-4)$

$-16y^2 + 32y$

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Teachers: Eman Nabas, Qusie Hijazeen