Pattern and Relations 1 Name: _____

Use the following information to answer question 11.

An art store is having a sale. The table below shows the regular price, r, and the sale price, s, of several items.

Item	Regular Price (r)	Sale Price (s)
Glue	\$5.00 x.85	\$4.25
Brushes	\$7.00 x.85	\$5.95
Paper	\$10.00 x.85	\$8.50
Crayons	\$12.00 x.85	\$10.20

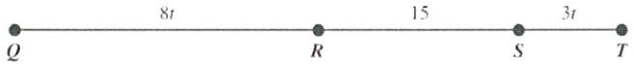
11. Which of the following equations was used to calculate the sale prices?

A. $s = 0.15r$
B. $s = 0.85r$
C. $s = r - 0.75$
D. $s = r - 0.85$

★ Try all equations for each situation

Use the following information to answer question 1.

Line segment QT is 48 units.



1. Which of the following linear equations represents the length of line segment QT?

A. $5t + 15 = 48$
B. $11t + 15 = 48$
C. $5t - 15 = 48$
D. $11t - 15 = 48$

$48 = 8t + 15 + 3t$
$48 = 11t + 15$

Use the following information to answer question 11.

Raj saves a part of his earnings each week. He uses the pattern below to decide how much of his weekly earnings he will save.

Weekly Earnings (e)	Weekly Savings (s)
\$10	\$7
\$12	\$8
\$14	\$9
\$16	\$10

11. Which of the following equations could represent the relationship between Raj's weekly savings, s, and his weekly earnings, e?

A. $s = e - 3$
B. $s = e - 6$
C. $s = 2.0(e - 5) - 3$
D. $s = 0.5(e + 10) - 3$

★ Try all equations for each situation

Pattern and Relations 1 Name: _____

Use the following information to answer question 21.

Nathan completed a 5 km run on his first day of training for a cross-country race. He increased the length of his next training runs by 1.5 km each time.

21. Which of the following equations could be used to determine the distance (d) that Nathan ran on each training run (r)?

Day	length
0	3.5
1	5
2	6.5
3	8

+1.5

A. $d = 1.5r$

B. $d = 5r$

C. $d = 1.5 + 3.5r$

D. $d = 3.5 + 1.5r$

Use the following information to answer question 22.

The relationship between two variables is given in the equation $35 + 15n = A$.

22. Which of the following situations could be represented using the equation above?

A. The price of a caterer for a party is \$35 for each dinner ordered and \$15 for each dessert ordered. ← 2 variables

B. The bill for framing a painting is \$35 for each square metre of glass required and \$15 for the wooden frame. ← 1 variable but 35

C. The fee for a computer consultant is \$15 for an administration charge and \$35 for each hour worked. ← 1 variable but at 35

D. The cost of silk screening a design on T-shirts is \$15 for each shirt created and a \$35 design fee. ← 1 variable

Use the following information to answer numerical-response question 1.

Members of a recreation centre pay a one-time registration fee in addition to a fixed monthly fee of \$15. The following table shows the total amount paid to be a member of the centre for a certain number of months.

Number of Months	Total Amount Paid
4	\$135
6	\$165
12	\$255

+30

0	75
2	105
4	135
6	165
12	255

Numerical Response

1. According to the information above, what is the cost of the one-time registration fee?

Answer: 75 **dollars**

(Record your answer in the numerical-response section on the answer sheet.)

Pattern and Relations 1 Name: _____

Rahim plants a tree in his yard and records its initial height. The height of the tree at the end of the first growing season is 1.3 times its initial height. In the second growing season, the tree grows 14.5 cm to reach a total height of 71.7 cm.

Numerical Response

0	44.5 ÷1.3
1	57.2
2	71.75

3. What was the **initial** height of the tree in centimetres?

Answer: 44 **cm**

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 23.

Alice works 8 hours a day as a waitress in a restaurant. She earns $12.50 an hour plus money received from tips, t.

23. Which of the following equations represents Alice's total earnings, E, for one day of work?

A. $E = 8(12.50) + t$
B. $E = 8(12.50 + t)$
C. $E = 8t + 12.50$
D. $E = 8 + 12.50t$

[8·12.50] + [tip]
↑ hourly ↑ tips

Use the following information to answer question 25.

David creates the table of values shown below based on designs he assembles using black and white 2-D shapes.

0 → 3
1 → 5

Number of Black Shapes (b)	Number of White Shapes (w)
2	7
3	9
4	11

+2, +2

25. Which of the following equations represents the linear relationship between the number of black shapes and the number of white shapes?

A. $5b - 3 = w$
B. $4b - 1 = w$
C. $3b + 1 = w$
D. $2b + 3 = w$

$w = 2b + 3$