EQAO Practice Paper 2015

Get your work and get ready to see how you did!
The total yearly cost of a museum membership is made up of a fee of $25, plus $5 per visit.

Which graph best represents the relationship between total yearly cost, C, and number of visits, n?

Initial value $25
increases by $5 per visit
A cellphone company offers four choices for purchasing talk time. Which of the following has the lowest cost per minute?

- F: 200 minutes for $24.50
- G: 550 minutes for $68.00
- H: 700 minutes for $80.25
- J: 850 minutes for $99.50

\[
\text{Cost per minute} = \frac{\text{Cost}}{\text{Minutes}}
\]

F: \[
\frac{24.50}{200} = 0.1225
\]

G: \[
\frac{68.00}{550} = 0.1236
\]

H: \[
\frac{80.25}{700} = 0.1146
\]

J: \[
\frac{99.50}{850} = 0.1171
\]
The table below shows information about the linear relationship between total savings and the number of months he saves money.

<table>
<thead>
<tr>
<th>Number of months, ( n )</th>
<th>Total savings, ( S ) ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>345</td>
</tr>
<tr>
<td>6</td>
<td>640</td>
</tr>
<tr>
<td>9</td>
<td>726</td>
</tr>
<tr>
<td>12</td>
<td>890</td>
</tr>
</tbody>
</table>

Which of the following represents this relationship?

A. \( S = 65n + 345 \)
B. \( S = 195n + 130 \)

\[
\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{195}{3} = 65
\]

Initial value when \( n = 0 \).
Jared uses the equation $C = 30n$ to determine the cost, $C$, in dollars, for renting a car for $n$ days, where $n$ is a whole number.

If Jared can spend a maximum of $200 on the rental, which of the following describes the possible values of $n$?

- $F \ 7, 8, 9, ...$
- $G \ 6, 7, 8, 9, ...$
- $H \ 0, 1, 2, 3, 4, 5, 6$
- $J \ 0, 1, 2, 3, 4, 5, 6, 7$

\[
\frac{200}{30} = \frac{30n}{30}
\]

\[6.6 = n\]

\[
\text{max # of days is } 6
\]

\[
[7 \text{ days } = \$210]
\]

\[C = 30n\]
What goes in the □ to complete the equation below?

\[(8x^3)\times(\square) = 24x^{12}\]

A. 3x^9
B. 3x^4
C. 16x^9
D. 16x^4

Coefficients follow normal math laws

\[
\frac{(8)(?)}{8} = 3
\]

Exponent laws - multiplying the same base = add the exponents
The container pictured below is made up of a cone and a cylinder. The cone and the cylinder have the same height.

height of cylinder = cone

\[ \frac{40}{2} = 20 \text{ cm} \]

radius = \( \frac{12}{2} = 6 \text{ cm} \)

Which of the following is closest to the volume of the container?

- A 1331 cm\(^3\)
- B 3016 cm\(^3\)
- C 3393 cm\(^3\)
- D 4534 cm\(^3\)

**Volume Calculation**

\[
V_{\text{cone}} = \frac{1}{3} \pi r^2 h
\]

\[
= \frac{1}{3} \pi (6^2)(20)
\]

\[
= 754 \text{ cm}^3
\]

\[
V_{\text{cylinder}} = \pi r^2 h
\]

\[
= \pi (6^2)(h)
\]

\[
= 2262 \text{ cm}^3
\]

**Total**

\[
= 754 + 2262 = 3016 \text{ cm}^3
\]
What is the value of $x$ in the diagram below?

\[ x + x + 38 = 180 \]
\[ 2x + 38 = 180 \]
\[ 2x = 180 - 38 \]
\[ 2x = \frac{142}{2} \]
\[ x = 71^\circ \]
More Money, Please!

The graph below shows information about the amount of money, \( y \), in Sheyla’s bank account and the number of months, \( x \), she has had the account.

\[ y = mx + b \]

\[ \text{slope} \quad y \text{-int} \]

\[ \text{slope} = \frac{\text{rise}}{\text{run}} \]

\[ = \frac{-55}{3} \]

\[ = -18\frac{1}{3} \]

\[ \text{Equation} \Rightarrow y = -18\frac{1}{3}x + 100 \]
Coated Cones

An ice cream store offers chocolate-coated cones as shown in the diagram below.

The cone is open-topped, and the entire outside is coated in chocolate.

Determine the area of the surface that is coated in chocolate.
Show your work.

\[ r^2 + h^2 = s^2 \]
\[ 6^2 + 10^2 = s^2 \]
\[ 36 + 100 = s^2 \]
\[ 136 = s^2 \]
\[ \sqrt{136} = s \]
\[ 11.66 = s \]

\[ A_{lat} = \pi rs \]
\[ = \pi (6)(11.66) \]
\[ = 219.79 \text{ cm}^2 \]
Share the Profits

Three partners, Luc, Deborah and Melanie, share the profits of a business in the ratio 2:3:7 respectively.
The profit for this year is $176,496.
Determine the share of the profit for each partner.
Show your work.

$$2 + 3 + 7 = 12 \text{ shares}$$
$$= 12 \text{ shares}$$

One share = \(\frac{176496}{12} = \$14708\)

Luc = \(2 \times 14708\)
\(= \$29416\)

Deborah = \(3 \times 14708\)
\(= \$44124\)

Melanie = \(7 \times 14708\)
\(= \$102956\)

Check → \(29416 + 44124 + 102956 = 176496 \checkmark\)
Movie Night

There are two payment options for downloading movies from a website:
- Option A: Pay $10 for a membership and $2 per movie downloaded.
- Option B: Shown on the grid below.

**Graph:**
- Total Cost vs. Number of Movies

**Point of intersection is (10, 50)**

10 movies costs $50

**Determine under which conditions a person should select Option A and under which conditions a person should select Option B.**

10 movies or less → Option B
10 movies or more → Option A
The equation of a line is \(5x - 2y + 10 = 0\). Which of the following expresses this equation in the form \(y = mx + b\)?

- \(F \ y = \frac{5}{2}x + 5\)
- \(G \ y = \frac{3}{2}x + 10\)
- \(H \ y = -\frac{2}{3}x + 5\)
- \(J \ y = -\frac{5}{2}x + 10\)

\[
5x - 2y + 10 = 0 \\
-2y = -5x - 10 \\
\frac{y}{-2} = \frac{x}{-2} + \frac{10}{-2} \\
y = \frac{5}{2}x + 5
\]
$5^2 + 12^2 = AY^2$
$25 + 144 = AY^2$
$169 = AY$
$\sqrt{169} = AY = 13 \text{ km}$

Total for detour = $12 + 13 = 25 \text{ km}$

$XB^2 + 3^2 = 5^2$
$XB^2 + 9 = 25$
$XB^2 = 25 - 9$
$XB^2 = 16$
$XB = \sqrt{16} = 4 \text{ km}$

Detour total = $4 + 3 = 7 \text{ km}$

Difference = $25 - 7 = 18 \text{ km}$
non-linear is when \[ \frac{\Delta P}{\Delta n} \] is NOT constant
Consider the line represented by the equation \( y = mx + 2 \).

A new line is formed by decreasing the slope and increasing the y-intercept.

Which of the following could be the graph of the new line?

Slope will be less steep.

y-intercept will be greater than 2.
The sum of the interior angles of a polygon is 2700°.

How many sides does the polygon have?

\[
\text{Sum} = (n-2) \times 180
\]

\[
2700 = (n-2) \times 180
\]

\[
\frac{2700}{180} = \frac{(n-2) \times 180}{180}
\]

\[
15 = n - 2
\]

\[
15 + 2 = n
\]

\[
17 = n
\]
Gertrude sells shoes.

Her total pay each week is made up of a base salary and a commission of 15% of her sales that week.

One week, her total pay is $167.50 and she has $850 in sales.

Which equation below represents the relationship between her total pay, $P$, each week and sales, $s$?

A. $P = 15s$
B. $P = 40 + 0.15s$
C. $P = 850 + 0.15s$
D. $P = 167.50 + 0.15s$

\[ P = b + 0.15s \]

\[ 167.50 = b + 0.15(850) \]

\[ 167.50 = b + 127.50 \]

\[ 167.50 - 127.50 = b \]

\[ 40 = b \]

**Equation** \[\implies P = 40 + 0.15s\]
What is the value of $x$ in the equation 

$-4(2x - 1) = 36$?

- $F - 4$
- $G \frac{35}{8}$
- $H \frac{37}{8}$
- $J - 5$

Answer:

$-4(2x - 1) = 36$

$-8x + 4 = 36$

$-8x = 36 - 4$

$-8x = 32$

$-8 \cdot \frac{-8}{8} = -4$

$x = -4$