Appendix 2

Grade 9 Mathematics Formula Sheet

The following information may be useful in writing this test.

Area (A)

Circle	$A = \pi r^2$
Rectangle	$A = lw$
Triangle	$A = \dfrac{bh}{2}$

Volume (V)

Right Cylinder	$V = \pi r^2 h$
Prism	$V = (\text{Base Area})h$

Circumference (C)

Circle	$C = \pi d$ or $2\pi r$

Pythagorean Theorem

$c^2 = a^2 + b^2$ where c is the hypotenuse

Use the following algebra-tile legend and algebra-tile model to answer question 4.

LEGEND:

- Shaded is positive
- Unshaded is negative

$= 1$ $= x$

MODEL:

4. The solution to the equation represented by the algebra-tile model above is

A.

B.

C.

D.

Grade 9 Math PAT Review
Sample Questions
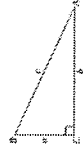Released Items & Examples from Alberta Education

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3. The simplified form of $6(m - 2n) - (4m - 5n)$ is

$6m - 12n - 4m + 5n$

A. $10m - 7n$

B. $10m - 17n$

C. $2m - 17n$

D. $2m - 7n$

Question 7

Use the following information to answer question 7.

The volume of the rectangular glass box shown below is 288 cm³.
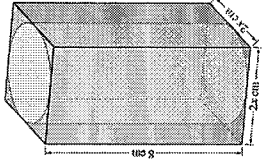
The formula used to calculate the surface area of a cylinder is:

Surface Area = $2\pi r^2 + 2\pi rh$

7. What is the surface area of the cylinder inside the glass box above, to the nearest square centimetre?

  A. 528 cm²
  B. 207 cm²
  C. 169 cm²
  D. 126 cm²

Handwritten:

$V = \text{Area of Base} \times h$

$\dfrac{288}{8} = 36$

$\sqrt{36} = 6 = \text{diameter}$

$\text{radius} = 3$

$2\pi(3)^2 + 2\pi(3)(8)$

Released from the 2006 PAT

Numerical Response

1. In his toolbox, a construction worker has twice as many screwdrivers as wrenches, and 5 fewer hammers than wrenches. If he has 19 tools in his toolbox, then the number of wrenches in his toolbox is __6__.

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

Handwritten:

$s + w + h = 19$

$2w + w + w - 5 = 19$

$4w - 5 = 19$

$w = 6$

Released from the 2006 PAT

Question 6

Use the following diagram to answer question 6.

Area = $(24x^2 + 72x)$ cm²

6. The length, l, of the rectangle shown above is

  A. $(6x + 18)$ cm
  B. $(20x + 68)$ cm
  C. $(6x^2 + 18x)$ cm
  D. $(24x^2 + 68x)$ cm

Released from the 2006 PAT

Question 8

Use the following diagram to answer question 8.

8. Rounded to the nearest tenth of a square metre, what is the area of the wall shown above, not including the area of the windows and the door?

  A. 24.2 m²
  B. 22.4 m²
  C. 21.7 m²
  D. 20.9 m²

Handwritten:

$2.6(9.3) - 0.9(0.8)(2) - 0.9(2)$

Released from the 2006 PAT

Question 9

Use the following information to answer question 9.

Simone works in a restaurant four hours a day for three days a week. She earns $9.50 per hour, plus tips.
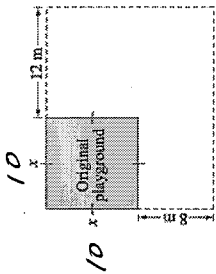
9. Which of the following expressions represents Simone's earnings in dollars for one week, E, where t represents the total amount of tips she earns that week?

A. $E = 4(9.50 + t)$
B. $E = 4(9.50) + t$
C. $E = 12(9.50 + t)$
D. $E = 12(9.50) + t$ *(circled)*

Question 10

Use the following information to answer question 10.

A square playground is being enlarged. One side of the original square playground is being increased by 12 m. The other side is being increased by 8 m.

10. If $x = 10$ m, then the total area of the playground when it is enlarged will be

A. 396 m^2
B. 196 m^2
C. 116 m^2
D. 96 m^2

(handwritten: 10, 10, 18(22) =)

Question 11

11. A warm-up pool contains 96 m^3 of water. Each day, 0.03 mL of chlorine is added to the pool for every litre of water in it. Given that $1 \text{ m}^3 = 1\,000$ L, the amount of chlorine added to the pool each day is

A. 2.88 mL
B. 30 mL
C. 2 880 mL *(circled)*
D. 96 000 mL

(handwritten: $96\,000(0.03)$ = 2880 m)

Question 12

12. If $x = 2$ and $y = 3$, then $2x^4y^3 - 9x^3y^0$ is equal to

A. 864
B. 792 *(circled)*
C. 621
D. 424

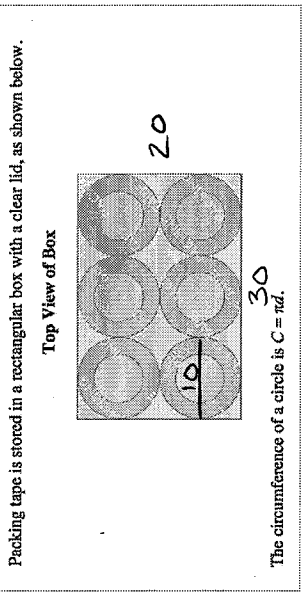*(handwritten: $2(2)^4(3)^3 - 9(2)^3(3)^0$ = $2(16)(27) - 9(8)(1)$)*

14. Pierre's class and Corissa's class have the same ratio of boys to girls. Pierre's class has 18 boys and 12 girls. If Corissa's class has 15 boys, then how many girls are in Corissa's class?

A. 6
B. 9
C. 10
D. 15

(handwritten work:) B : G 18 : 12 15 : 7

$\div 1.2$ $\times 1.2$

$\dfrac{18}{1.2} = 10$

Use the following information to answer question 16.

Packing tape is stored in a rectangular box with a clear lid, as shown below.

Top View of Box

(handwritten: 20, 30, 10)

The circumference of a circle is $C = \pi d$.

16. If the circumference of each roll of tape is 31.5 cm, then the perimeter of the clear lid of the box, to the nearest tenth of a centimetre, is

A. 189.0 cm
B. 100.3 cm
C. 60.2 cm
D. 50.2 cm

(handwritten work:)

$C = \pi d$

$\dfrac{31.5}{\pi} = \dfrac{\pi d}{\pi}$

$d = 10$

$P = 2(30) + 2(20)$
$= 60 + 40$
$P = 100\,cm$

---

17. If the angles of a triangle have a ratio of 1:2:6, then the measure of the largest angle is

A. 20°
B. 40°
C. 120°
D. 140°

(handwritten work:)

Total
1 : 2 : 6 = 9 $\times 20$
20 : 40 : 120 : 180

---

18. Tiarra earns $8.50/h at her part-time job. Which of the following graphs shows the relationship between the number of hours that she works and the amount of money that she earns?

A.
B.
C.
D.
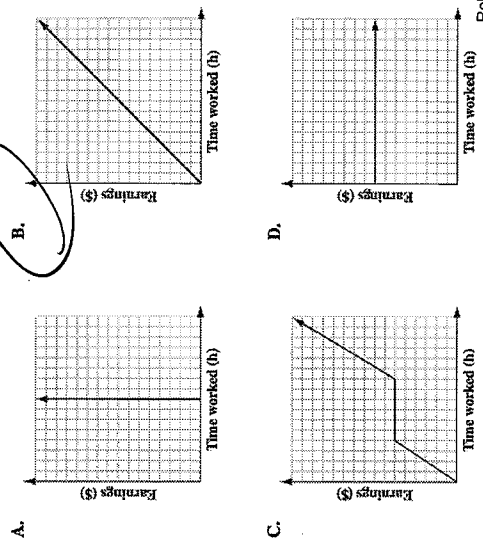
19. A DVD player is advertised for 20% off the regular price of $119.99. What is the final cost of the DVD player after 7% GST is applied?

A. $108.31
B. $106.99
C. $104.39
D. $102.71

$$119.99(0.8)(1.07)$$

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20. If $x = 2y$, then what is the value of $\dfrac{12x + 4y}{2y}$?

A. 28
B. 24
C. 14
D. 12

$$\frac{12(2y) + 4y}{2y}$$

$$= \frac{24y + 4y}{2y}$$

$$= \frac{28y}{2y}$$

Numerical Response

3. If $\dfrac{(n^3)^4}{(n^6)(n^2)} = 4\,096$, then n equals ___8___

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

$$= \frac{n^{12}}{n^8} = n^4$$

$$8^4 = 4096$$

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23. Kassidy has been hired to survey people in her town to determine if a new swimming pool should be built. The **most** representative sample for Kassidy to use for the survey is a random sample from

A. community members
B. students of the local school
C. the town's business owners
D. members of the local diving club

26. Kim and Jan scored a total of 234 points in a game. Jan scored 10 more points than Kim. If Kim's score is represented by x, then an equation that represents the total points scored by Kim and Jan is

A. $x - 10 = 234$
B. $x + 10 = 234$
C. $2x - 10 = 234$
D. $2x + 10 = 234$

(handwritten)
$J = k + 10$
$K + J = 234$
$K + J = 234$
$K + k + 10 = 234$
$2x + 10 = 234$
$\quad -10 \quad -10$
$\dfrac{2x}{2} = \dfrac{224}{2}$

Use the following information to answer question 29.

A rectangle and its dimensions are shown below.
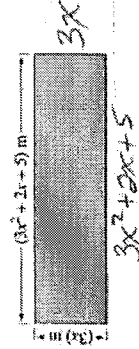
29. The expression that represents the perimeter of the rectangle is

A. $(3x^2 + 5x + 5)$ m
B. $(6x^2 + 7x + 10)$ m
C. $(6x^2 + 10x + 10)$ m
D. $(12x^2 + 2x + 5)$ m

(handwritten)
$3x^2 + 2x + 5$
$3x$

Use the following information to answer question 24.

Ali plays basketball on Monday, Tuesday, Wednesday, and Thursday. She plays basketball for 42 minutes on Monday, 32 minutes on Tuesday, and 50 minutes on Wednesday.

24. If the average number of minutes that Ali played basketball from Monday to Thursday was 45 minutes, then how many minutes did she play basketball on Thursday?

A. 56
B. 42
C. 41
D. 31

(handwritten)
$45(4) = 180$
$42 + 32 + 50 + \boxed{?} = 180$
Thursday $= 56$

Use the following diagram to answer question 27.

27. If the triangle ABC rotates 90° clockwise around point D, then the coordinates of C' will be

A. $(6, -2)$
B. $(1, -3)$
C. $(-1, -3)$
D. $(-2, 6)$

32. If the perimeter of a rectangle is 32 cm, then the dimensions that would give the greatest possible area are

   A. 1 cm by 15 cm

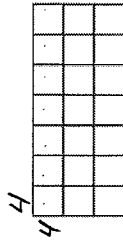   B. 1 cm by 31 cm

   C. 8 cm by 8 cm

   D. 16 cm by 16 cm

Use the following diagram to answer numerical-response question 4.

A   B   2.5 m   8.6 m   C   5.0 m   D   E   4.3
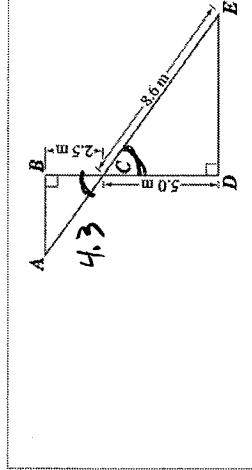
Numerical Response

4. If $\triangle ABC$ and $\triangle EDC$ are similar triangles, then what is the length, to the nearest tenth of a metre, of **segment** AE?

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

$\dfrac{5.0}{2.5} = 2 \qquad \dfrac{8.6}{2} = 4.3$

$8.6 + 4.3 = 12.9$

Use the following information to answer question 31.

The sides of a particular triangle measure

- $(3x - 1)$ cm
- $(x + 3)$ cm
- (x) cm

31. If the perimeter of the triangle is 66 cm, then the length of the shortest side of the triangle is

   A. 12.8 cm

   B. 13.6 cm

   C. 37.4 cm

   D. 38.6 cm

$$x + (3x - 1) + (x + 3) = 66$$
$$5x + 2 = 66$$
$$-2 \quad -2$$
$$\frac{5x}{5} = \frac{64}{5}$$
$$x = 12.8\ cm$$

Use the following information to answer question 33.

Each small square below has an area of 16 cm².

4
4

33. What is the perimeter of the entire rectangle?

   A. 168 cm

   B. 160 cm

   C. 84 cm

   D. 80 cm

$$7(4)(2) + 3(4)(2)$$
$$= 56 + 24$$
$$= 80$$

$4x - 12 > 8x + 4$
$-8x \quad\quad -8x$
$-4x - 12 > +4$
$+12 \quad\quad +12$
$-4x > 16$
$\dfrac{-4x}{} \quad x < -4$

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36. Which of the following number lines represents the solution to the inequality $4x - 12 > 8x + 4$ when x is a rational number?

A.

B.

C.

D. (circled)
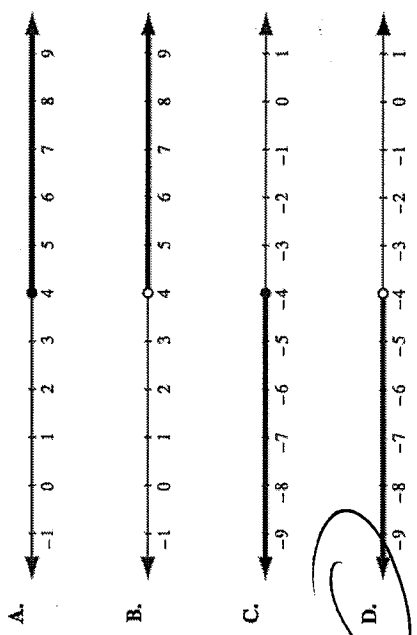
Released from the 2006 PAT

Use the following information to answer question 39.

> A restaurant sells small sandwiches for $3 each and large sandwiches for $5 each. Last weekend, the restaurant sold 300 sandwiches for a total of $1 210.

39. How many **small** sandwiches did the restaurant sell last weekend?

A. 140
B. 145 (circled)
C. 150
D. 155

Handwritten work:

$3S + 5L = 1210 \qquad S + L = 300$
$\qquad\qquad\qquad\qquad S = 300 - L$
$3(300 - L) + 5L = 1210$
$900 - 3L + 5L = 1210$
$-900 \qquad\qquad\quad -900$
$\dfrac{2L}{2} = \dfrac{310}{2}$
$L = 155$
$S = 145$

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40. A gas station gives its customers 5 reward points for every litre of gas that they purchase. If gas is 75.6¢/L and the total cost of a purchase is $16.18, then the total number of reward points that the customer will receive, to the nearest 5 points, is _____

A. 80
B. 105 (circled)
C. 325
D. 380

Handwritten work:

$\dfrac{16.18}{0.756} = 21.4\ L$
$21.4(5) = 107$

Released from the 2006 PAT

Numerical Response

5. Brent is 7 years younger than Gail. In 3 years, the sum of their ages will be 83. What is Brent's age now?

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

Handwritten work:

$B + 3 + G + 3 = 83 \qquad B = G - 7$
$G - 7 + 3 + G + 3 = 83$
$2G - 1 = 83$
$\qquad\ +1 \quad +1$
$\dfrac{2G}{2} = \dfrac{84}{2}$
$G = 42$
$B = 35$ (circled)

Released from the 2006 PAT

Question 6

Use the following information to answer question 6.

The perimeter of a triangle is $24x - 6$. The lengths of two sides of the triangle are represented by the expressions $5x - 7$ and $2x + 5$.

6. Which of the following expressions represents the length of the third side of the triangle?

   A. $17x + 8$
   B. $17x - 8$
   C. $17x + 4$
   D. $17x - 4$ *(circled)*

Handwritten work:
$$(5x-7)+(2x+5)+(\ ?\ ) = 24x - 6$$
$$7x - 2 + (\ ?\ ) = 24x - 6$$
$$? = 17x - 4$$

Question 12

12. Which of the following inequalities can be used to determine the number of hours, t, that Cailey must work in one month to save at least $200?

   A. $15t + 1\,150 \geq 200$
   B. $15t + 1\,150 \leq 200$
   C. $15t - 1\,150 \geq 200$
   D. $15t - 1\,150 \leq 200$

Handwritten work:
$15/hour$ Monthly expenses = $1150

$15t - 1150 \geq 200$

how much she earns — $15t$
her expenses — 1150
at least (greater than or equal to)
saving — 200

Question 44

Use the following information to answer question 44.

A tent has the shape of a square-based pyramid, as shown below.
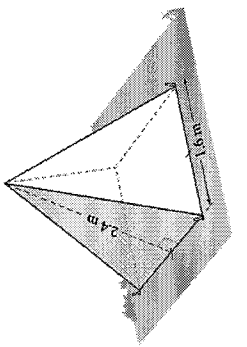
44. Including the base, the surface area of the tent, to the nearest hundredth of a square metre, is

   A. $15.36\ m^2$
   B. $10.24\ m^2$ *(circled)*
   C. $7.68\ m^2$
   D. $1.92\ m^2$

Handwritten work:
$$4\left[\frac{2.4(1.6)}{2}\right] + (1.6)^2$$
$$= 7.68 + 2.56$$
$$= 10.24$$

Question 7

7. Ross conducts a survey to determine the demand for a skateboard park. Ross can **best** minimize the bias in his survey by surveying people

   A. at only one location
   B. who have skateboards
   C. who are different ages *(circled)*
   D. at the same time of day

15.

Francis has an equal number of nickels, dimes, and quarters. If she has $4.40 in coins, then the total number of nickels that she has is

A. 33
B. 30
C. 11 *(circled)*
D. 10

Handwritten work:

$5n + 10d + 25q = 440 \qquad n=d=q=x$

$5x + 10x + 25x = 440$

$40x = 440$

$x = 11$

Use the following information to answer question 19.

A student completed the following four steps to solve the equation $\frac{x}{40} + \frac{x}{60} = 1$. However, in one of the steps the student makes a mistake.

Step 1 $120\left(\frac{x}{40} + \frac{x}{60}\right) = 1\,(120)$

Step 2 $\frac{120x}{40} + \frac{120x}{60} = 1$

Step 3 $3x + 2x = 1$

Step 4 $5x = 1$

Solution $x = \frac{1}{5}$

19.

In which step was the mistake made in solving the equation?

A. Step 1 *(circled)*
B. Step 2
C. Step 3
D. Step 4

20.

What is the value of the expression $2x^2 - 3x + 2x - 3$ if $x = 8$?

A. 53
B. 85
C. 101
D. 117 *(circled)*

Handwritten work:

$2(8)^2 - 3(8) + 2(8) - 3$

$= 2(64) - 24 + 16 - 3$

$= 128 - 24 + 16 - 3$

$= 117$

21.

If the expression $-3x + 5 + x - 8 + 5x - 7$ is simplified, which of the following rows identifies the coefficient and the constant?

Row	Coefficient	Constant
A.	3	10
B.	3	-10
C.	-3	10
D.	-3	-10

(Row B is circled)

Handwritten: $3x - 10$

Top-left quadrant

Use the following information to answer question 24.

Two friends spent a total of $3\frac{1}{2}$ hours at various places in a mall as shown below.

Food court	25% of the time ✱
Movie theatre	43% of the time
Shops	29% of the time
Other	3% of the time

24. How many minutes did they spend in the food court?

$3\frac{1}{2}h = 210\ min$

$210(0.25) = 52.5$

A. 11.4 min
B. 28.5 min
C. 52.5 min ⟵ (circled)
D. 81.3 min

Released from the 2008 PAT

Top-right quadrant

Use the following information to answer question 33.

A "half-pipe" such as those used by skateboarders is shown below.

Diameter = 10 m

Curved surface

31 m

Circumference of a circle = πd

33. What is the area of the curved surface of the half-pipe, to the nearest metre?

$Area = \dfrac{Ch}{2} \leftarrow semi\text{-}circle$

$= \dfrac{\pi d h}{2}$

$= \dfrac{\pi(10)(20)}{2} = 314\,m^2$

A. 157 m²
B. 200 m²
C. 314 m² ⟵ (circled)
D. 625 m²

Released from the 2008 PAT

Bottom-left quadrant

Numerical Response

3. Cailey is training for a race. Each day she runs 2 km more than she did the previous day. If Cailey ran a total of 21 km in 3 days, then how many kilometres did she run on the first day?

Answer: ___5___ kilometres

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

$x + x+2 + x+4 = 21$

$3x + 6 = 21$
$\quad\ \ -6\ \ \ -6$

$\dfrac{3x}{3} = \dfrac{15}{3}$

$x = 5$

Released from the 2008 PAT

Bottom-right quadrant

Use the following information to answer question 27.

A playground is rectangular in shape with dimensions as shown in the diagram below.

Playground

20 m

30 m

27. By how many metres must both dimensions of the playground be increased in order to double the area of the playground?
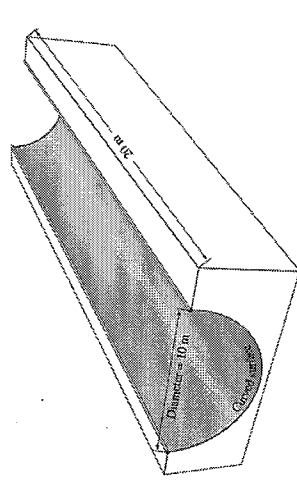
Current area = $20(30) = 600\,m^2$

add 10m $\quad 30(40) = 1200\,m^2$

A. 10 m (circled)
B. 20 m
C. 50 m
D. 100 m

Released from the 2008 PAT

Use the following information to answer numerical-response question 5.

A student performs an experiment by throwing a paper cup into the air and observing how it lands. A tally chart of the results is shown below.

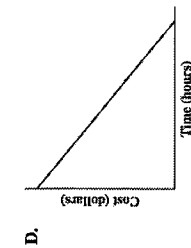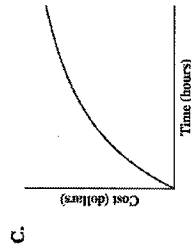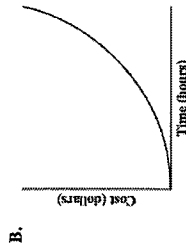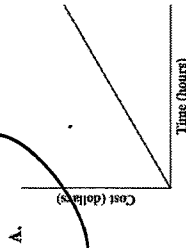| Possible Outcome		Number of Outcomes
Cup lands on its side	⊔ (cup)	𝍩𝍩𝍩𝍩 20
Cup lands upright	⊓ (cup)	= 2 *2*
Cup lands upside down	⊓ (cup)	≡ 3 *3* *5*

Numerical Response

5. According to the tally chart above, the probability of the cup **not** landing on its side, expressed as a percentage, is _____ %.

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

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(handwritten: $\frac{5}{25} = 20\%$, answer 20)

Numerical Response

6. Sidney wants to build a rectangular ice rink in her backyard. If she wants the ice rink to have the **greatest possible** area within a perimeter of 36 m, then she should make the length of one side of the ice rink _____ m.

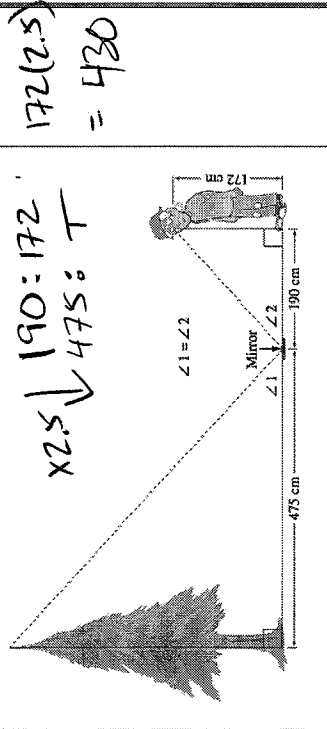*(Record your answer in the numerical-response section on the answer sheet.)*

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(handwritten: Make it a square! $\frac{36}{4} = 9$)

Use the following expression to answer question 34.

$$\frac{(2^3 \times 2^4)^2}{(2^2 \times 4^3)^2}$$

(handwritten: $2^6 = 4^3$)

34. Which of the following powers is equivalent to the expression above?

(handwritten: $\frac{(2^7)^2}{2^8} = \frac{2^{14}}{2^8} = 2^6$)

A. 2^6
B. 2^9
C. 4^{16}
D. 4^{18}

Released from the 2008 PAT

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37. Movers from a particular moving company charge $46.00/hr. Which of the following graphs represents the relationship between the number of hours that the movers work and the total cost of a move?

A. *(graph: Cost (dollars) vs Time (hours) — straight line increasing)*

B. *(graph: Cost (dollars) vs Time (hours) — curve increasing)*

C. *(graph: Cost (dollars) vs Time (hours) — curve)*

D. *(graph: Cost (dollars) vs Time (hours) — straight line increasing)*

Released from the 2008 PAT

Example 1:

Numerical Response

How many whole number values are part of the solution set of $-1 < \frac{4-x}{2} < 3$?

Answer: __7__ whole numbers

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

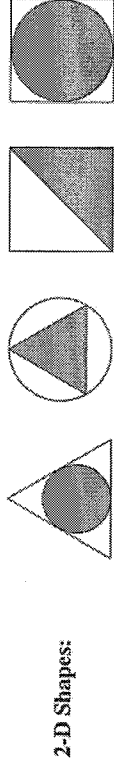$$2(-1) < \left(\frac{4-x}{2}\right)2 < 3(2)$$
$$-2 < 4-x < 6$$
$$\frac{-6}{-1} < \frac{-x}{-1}$$
$$6 > x$$

$$x > -2$$
or $x < 6$

solutions are $-1, 0, 1, 2, 3, 4, 5$

Sample question provided by Alberta Education

Example 3:

Numerical Response

How many lines of symmetry does each of the 2-D shapes shown below have?
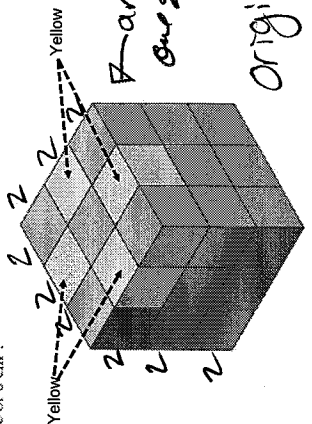
Lines of Symmetry: __3__ __3__ __1__ __4__

2-D Shapes:

(Record all four digits of your answer in the numerical-response section on the answer sheet.)

Sample question provided by Alberta Education

Use the following information to answer question 44.

Hank can see the top of a tree in a mirror that is placed 475 cm from the tree when he stands 190 cm from the mirror, as shown below.

$$\frac{475}{190} = 2.5$$
$$190 : 172$$
$$475 : ?$$
$$172(2.5) = 430$$

44. What is the height of the tree shown above?

A. 256 cm
B. 362 cm
C. 430 cm
D. 525 cm

Released from the 2008 PAT

The following object contains 23 blue cubes and 4 yellow cubes. Each cube has a volume of 8 cm³.

Numerical Response

What will be the surface area of the object shown above if the 4 yellow cubes are removed?

Answer: __248__ cm²

area of 1 side of one small cube = $2(2)=4$

Original = $6(6)(6) = 216$ cm²

Add $2(4)=8$ for each cube removed $8(4)=32$

$216+32 = 248$

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

Sample question provided by Alberta Education

Example 6:

Red
Yellow

What is the area of the red shaded region in the square shown above if the area of the yellow triangle is 18 units²?

$18\left(\frac{3}{4}\right) =$

Numerical Response

Answer: __13.5__ units²

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

Sample question provided by Alberta Education

Example 4:

$\sqrt{17.64} = 4.2$

4.2

2.1

1.05 yellow

$P = 2.1(2) + 1.05(2) = 6.3$

Yellow

The square tile pattern shown below has an area of 17.64 cm².

What is the perimeter of **one** yellow rectangle in the tile pattern shown above?

Numerical Response

Answer: __6.3__ cm

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

Sample question provided by Alberta Education

Example 5:

50°

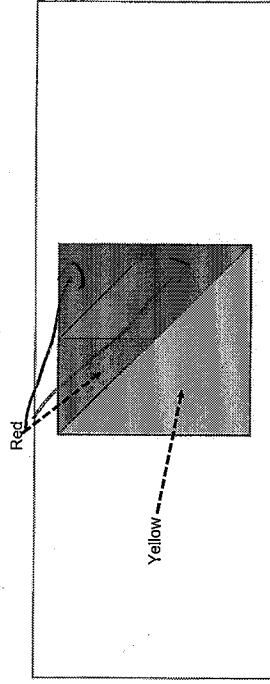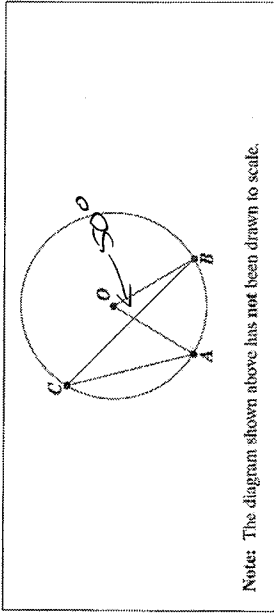Note: The diagram shown above has not been drawn to scale.
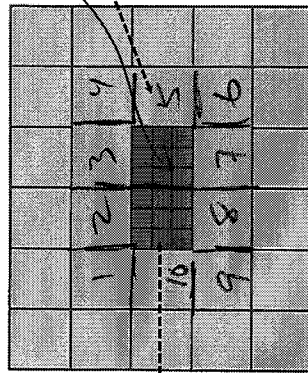
Numerical Response

If $\angle AOB = 50°$, then $\angle ACB =$ __25__ °.

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

Sample question provided by Alberta Education

Example 7:

The area of one blue square shown in the diagram below is $16x^2$.

$9(16x^2)$
$= 144x^2$
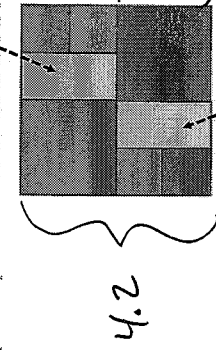
$(144x^2)(10)$
$= 1440x^2$

Yellow

Blue

The area of the yellow section of the diagram shown above is __1440__ x^2.

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

Sample question provided by Alberta Education

Use the following information to answer question 20.

Chantal receives a $50 gift card to join the online music store shown below.
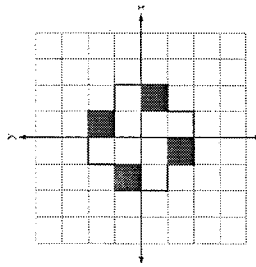
New Tunes
$5.00 sign-up fee
$0.99 per song

20. Which of the following inequalities can be used to determine the maximum number of songs that Chantal can purchase with her gift card?

A. $50 \geq 5 + 0.99x$
B. $50 > 5 + 0.99x$
C. $50 \leq 5 + 0.99x$
D. $50 < 5 + 0.99x$

Released from the 2012 PAT

Use the following information to answer question 40.

The local newspaper of a large city printed the following graph with the following headline:

"Robberies are Predicted to Double in 2011"

Number of Robberies from 2009 to 2010
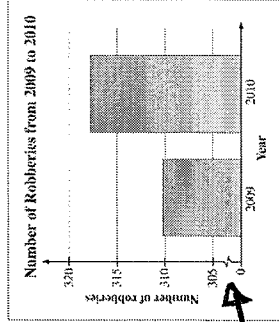
40. The newspaper headline is not a reasonable interpretation of the graph shown above because the

A. width of the bars is exaggerated
B. scale of the y-axis is misleading
C. probability is based on theoretical data
D. probability is based on experimental data

Released from the 2012 PAT

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39. Monica multiplies $-\frac{2}{3}$ by a number. If her answer is $-\frac{3}{2}$, then Monica multiplied $-\frac{2}{3}$ by

A. $-\left(\frac{3}{2}\right)^{0}$
B. $\left(\frac{3}{2}\right)^{0}$
C. $-\left(\frac{3}{2}\right)^{2}$
D. $\left(\frac{3}{2}\right)^{2}$

$-\frac{2}{3} \times \frac{3}{2} \times \frac{3}{2} = \frac{-18}{12} = -\frac{3}{2}$

Released from the 2012 PAT

Use the following information to answer question 24.

24. The shape shown above has rotational symmetry of order __i__, and __ii__ lines of symmetry.

The statement above is completed by the information in row

Row	i	ii
A.	2	0
B.	2	2
C.	4	0
D.	4	2

Released from the 2012 PAT

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. $s = 0.5(e + 10) - 3$

(handwritten) for every $2 extra he earns, his weekly savings go up by $1.00. So, he saves half (0.5) of what he earns

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23. Which of the following rows has the rational numbers ordered from **least** to **greatest**?

Row	Least			Greatest
A.	$-\frac{5}{7}$	$-0.\overline{6}$	$\frac{2}{5}$	0.5
B.	-0.6	$-\frac{5}{7}$	$\frac{2}{5}$	0.5
C.	$\frac{5}{7}$	$-0.\overline{6}$	0.5	$\frac{2}{5}$
D.	$-0.\overline{6}$	$-\frac{5}{7}$	0.5	$\frac{2}{5}$

Use the following information to answer numerical-response question 2.

The local movie theatre sells two sizes of popcorn. The large bag of popcorn is a scale enlargement of the small bag.
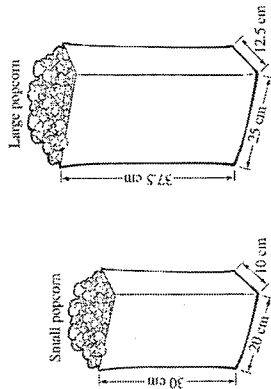
Numerical Response

2. The difference between the exterior surface area of the large popcorn bag and the small popcorn bag is _____ cm².

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

(handwritten)

Large
$37.5(25)(2) + 12.5(37.5)(2) + 25(12.5) = 3125$

Small
$30(20)(2) + 30(10)(2) + 20(10) = 2000$

$3125 - 2000 = \boxed{1125 \ cm^2}$