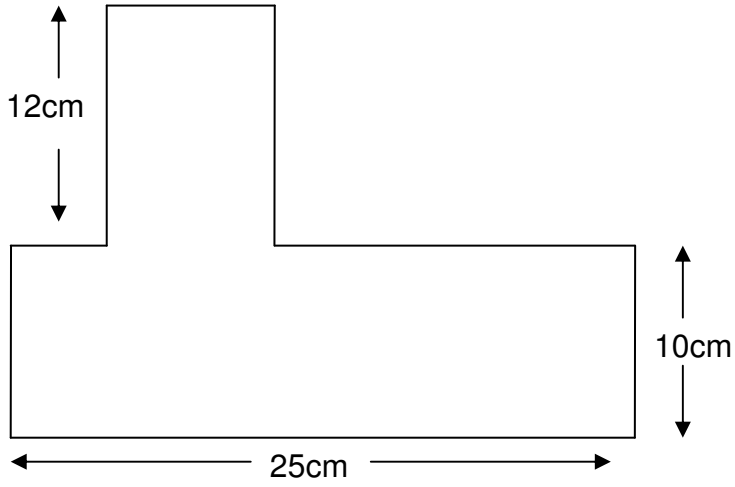
Question 7

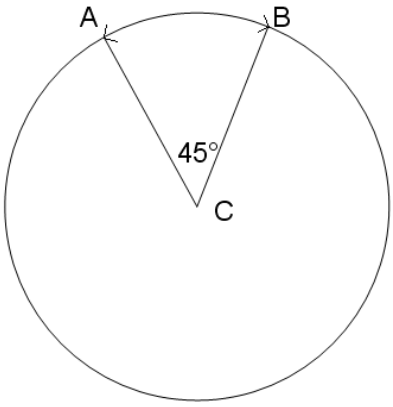
The perimeter of the shape is



A: 47cm **B**: 72cm **C**: 69cm **D**: 94cm **E**: Not enough information to find perimeter

Question 8

If the length of the shorter arc $\overline{AB}$ is 22cm and C is the centre of the circle then the circumference of the circle is:



A: 990cm **B**: 67cm **C**: 176cm **D**: 88cm **E**: None of these

---

Question 9

If 2 fligs make a flog and 3 flogs make a flug, how many fligs in 12 flugs?

A: 72 **B**: 17 **C**: 36 **D**: 34 **E**: None of these

Question 10

If $2\ ^1/_3 : 4\ ^1/_3$ then 7: ☐ ☐ =

A: 12 **B**: 13 **C**: $8\ ^2/_3$ **D**: $6\ ^1/_3$ **E**: None of these

---

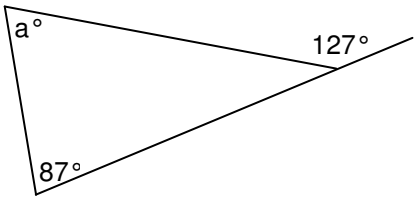
Question 11

Concrete is made by mixing screenings cement and sand in the ratio 3:1:15. How much sand would be needed to make 125 tonnes of concrete?

A: 27 tonnes **B**: 33.75 tonnes **C**: 45 tonnes **D**: 75 tonnes **E**: None of these

---

Question 12

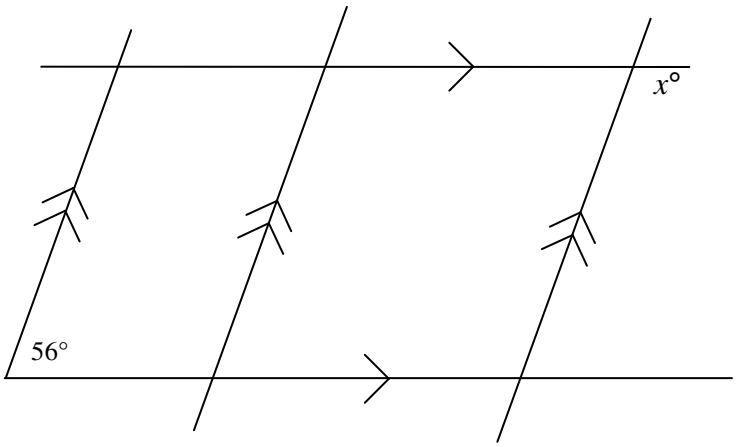


$a° =$

A: 53 **B**: 40 **C**: 93 **D**: 146 **E**: None of these

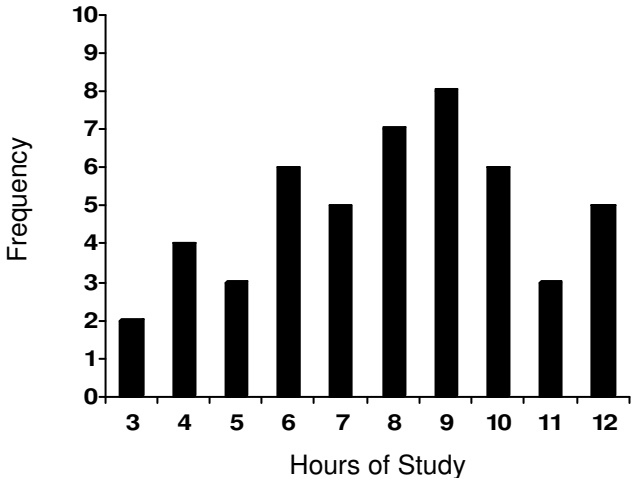
Question 13

$x° =$



A: 124 **B**: 304 **C**: 54 **D**: 66 **E**: None of these

Use the following graph to answer questions 14 and 15



The graph shows the number of hours a year 8 group spent doing homework for one week.

Question 14

How many students studied for more than 8 hours in the week?

A: 22 **B**: 29 **C**: 42 **D**: 50 **E**: None of these

Question 15

How many students studied for 6 hours or less per week?

A: 9 **B**: 18 **C**: 15 **D**: 12 **E**: None of these

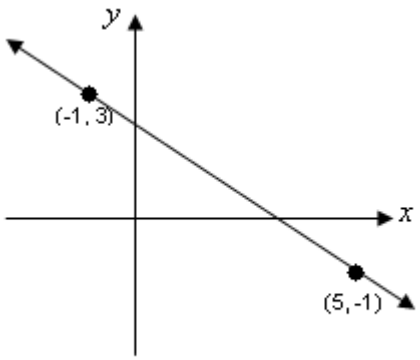
Question 16

Two six sided dice are thrown together. What is the probability that a total of 10 is thrown?

A: $^1/_6$ **B**: $^1/_{12}$ **C**: $^1/_2$ **D**: $^5/_6$ **E**: None of these

Question 17

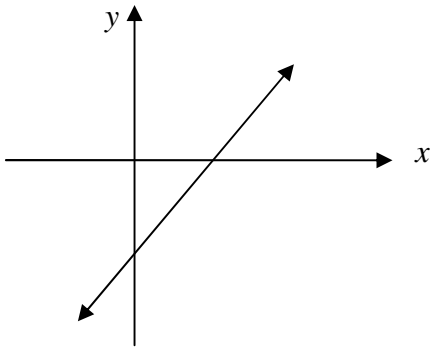
The gradient of the line is



A: $\frac{3}{2}$ **B**: $\frac{2}{3}$ **C**: $-\frac{2}{3}$ **D**: $-\frac{3}{2}$ **E**: None of these

Question 18

The y intercept of the graph could only be:



A: $(4,0)$ **B**: $(0,-3)$ **C**: $(-4,0)$ **D**: $(-3,0)$ **E**: $(0,3)$

Question 19

Which inequation shows the following statement?

x is 6 or less and more than – 5

A: $-5 < x \leq 6$ **B**: $-5 > x \leq 6$ **C**: $-5 \leq x \leq 6$ **D**: $-5 < x < 6$ **E**: $-5 \leq x < 6$

Question 20

Expand and simplify

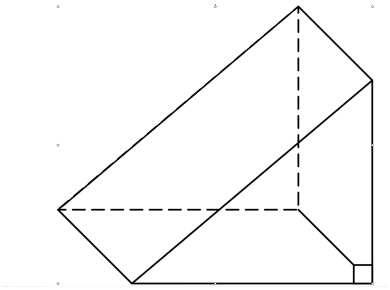
– 6 (2x – 3) – 11

A: $-12x - 29$ **B**: $7 - 12x$ **C**: $12x - 7$ **D**: $7 + 12x$ **E**: None of these

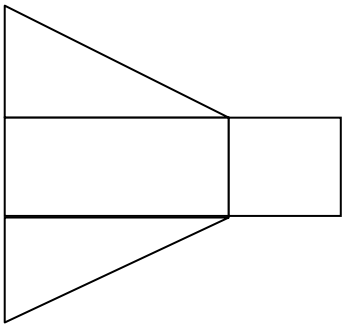
---

Question 21

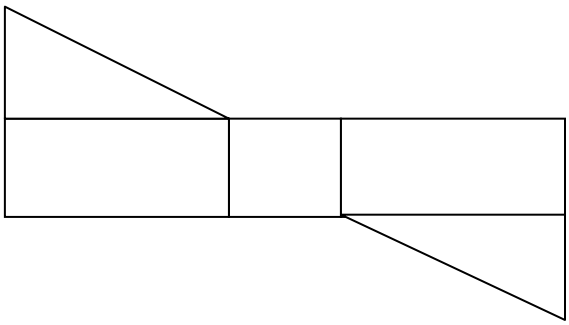
Which option would make this solid?



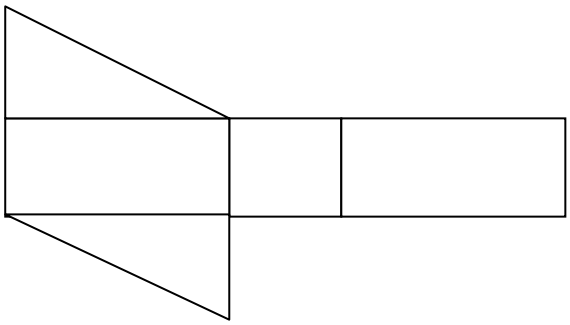
A:



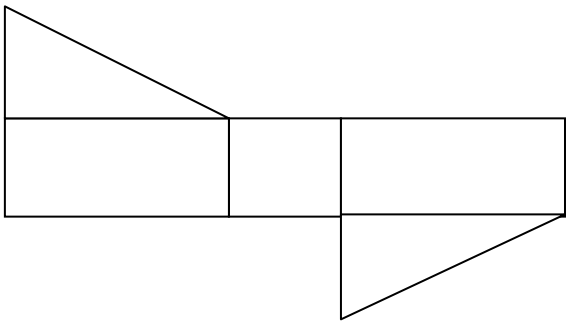
B:



C:



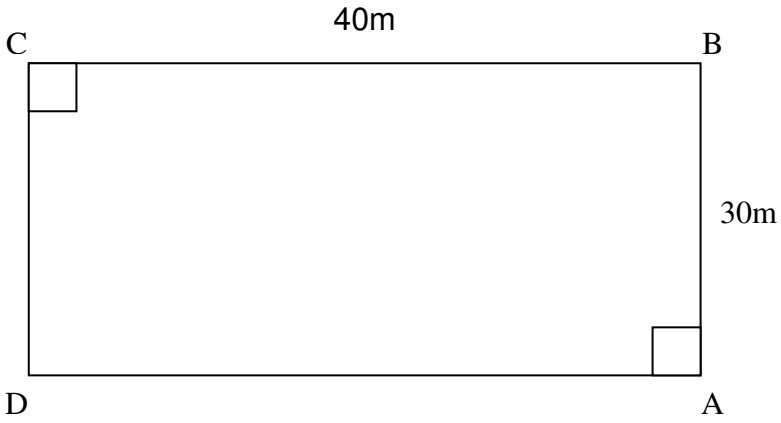
D:



E: None of the nets would make the solid

Question 22

The diagram shows a small rectangular field. If Linda runs from A to B to D to C to A, how far does she run?



A: 120m **B**: 160m **C**: 140m **D**: 150m **E**: None of these

Question 23

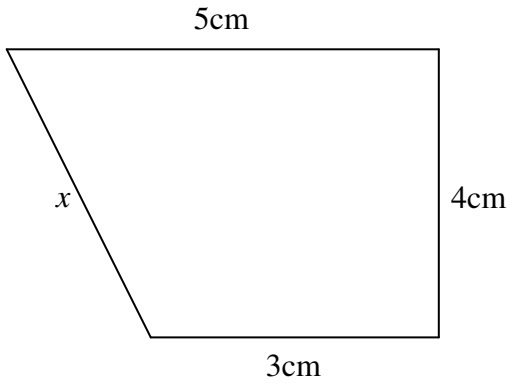
Simplify the surd $3\sqrt{56}$ completely

A: $12\sqrt{14}$ **B**: $5\sqrt{14}$ **C**: $6\sqrt{14}$ **D**: $6\sqrt{28}$ **E**: None of these

---

Question 24

The length of x equals



A: 6cm

B: $\sqrt{6}cm$

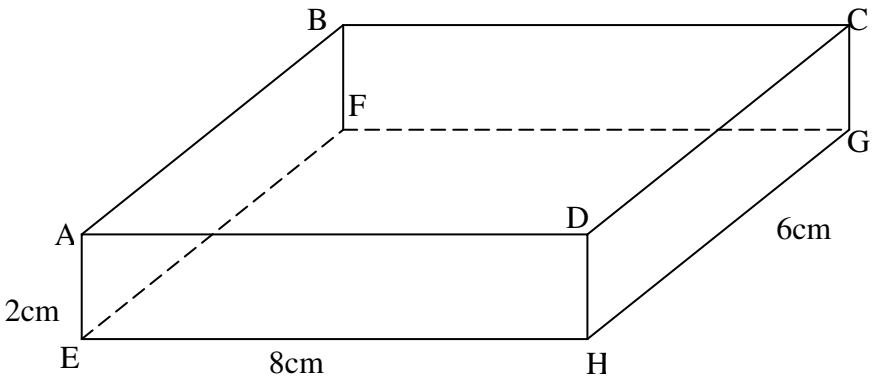
C: $5\sqrt{2}cm$

D: $2\sqrt{5}cm$

E: None of these

Question 25

The rectangle box has dimensions as shown. What is the length $\overline{AG}$?



A: $2\sqrt{26}$

B: $4\sqrt{6}$

C: $2\sqrt{3}$

D: $\sqrt{16}$

E: None of these

Question 26

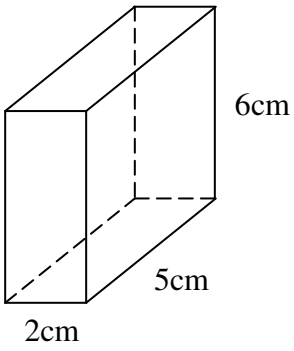
Sam bought a car valued at \$7700. One year later the car's value had decreased by $^{2}/_{7}$. What is the new value of the car?

A: \$2200 **B**: \$5500 **C**: \$9900 **D**: \$4400 **E**: None of these

---

Question 27

If Density = Mass ÷ Volume, what is the Mass of the solid in the diagram if its Density is 1.2gm / $cm^{3?}$



A: 50gm

B: 60gm

C: 72gm

D: 38.4gm

E: None of these

Question 28

What is the speed in m/s of a car that travels 30km in 20 minutes?

A: 1500 m/s **B**: 150 m/s **C**: 90 m/s **D**: 540 m/s **E**: None of these

---

Question 29

If R = $\frac{(S+T)P}{3}$ then T equals

A: $\frac{3R-S}{P}$ **B**: $\frac{PR}{3}-S$ **C**: $\frac{3R}{P}+S$ **D**: $\frac{3R+S}{P}$ **E**: $\frac{3R}{P}-S$

Question 30

Solve the inequation for x

$$\frac{5(9-x)}{3}+1<11$$

A: $x<3$ **B**: $x>3$ **C**: $x>-3$ **D**: $x>1\,{}^{4}/_{5}$ **E**: None of these

---

Question 31

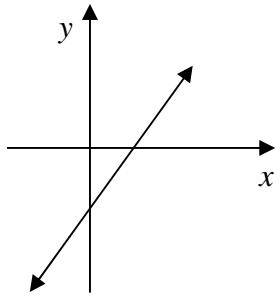
Solve for x

$$\frac{4x-3}{5}-\frac{2x-3}{2}=-2$$

A: $x=1\,{}^{11}/_{18}$ **B**: $x=5\,{}^{1}/_{2}$ **C**: $x=-5\,{}^{1}/_{2}$ **D**: $x=14\,{}^{1}/_{2}$ **E**: $x=-14\,{}^{1}/_{2}$

Question 32

Which equation could only be the equation of the graph?



A: $y = 3x + 2$

B: $y = -3x - 2$

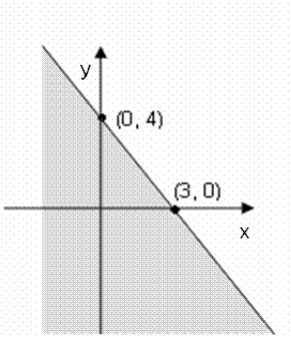
C: $y = 3x - 2$

D: $y = -3 + 2$

E: $y = -x - 2$

Question 33

Which set of coordinates lie outside the shaded area?



A: $(0,0)$

B: $(-1,-6)$

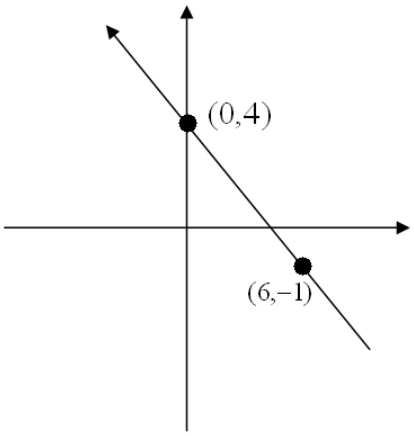
C: $(1,-50)$

D: $(1,1)$

E: $(4,1)$

Question 34

The equation of this graph is:



A: $y = -\frac{6x}{5} + 4$

B: $y = \frac{5x}{6} + 4$

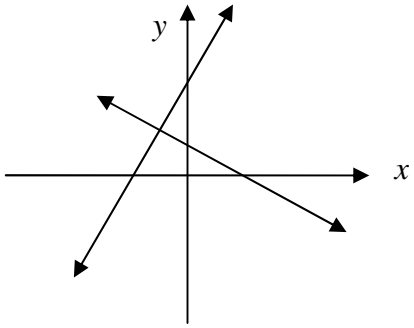
C: $y = 5x + 4$

D: $y = -\frac{5x}{6} + 4$

E: $y = \frac{-5x}{6} - 4$

Question 35

The coordinates of the point of intersection for the two graphs could only be:



A: $(-1,2)$

B: $(-1,-2)$

C: $(1,2)$

D: $(1,-2)$

E: $(2,-1)$

Question 36

$-(-3)^3 =$

A: - 9 **B**: 27 **C**: 9 **D**: -27 **E**: None of these

Question 37

$\frac{10x^2}{4y} \times \frac{8y^3}{5x} =$

A: $4x^2y$ **B**: $\frac{2y}{x}$ **C**: $\frac{2xy^5}{xy}$ **D**: $4xy^2$ **E**: None of these

---

Question 38

$(3°y)^2 \times 2(xy)°$

A: $18y^2$ **B**: $36xy^3$ **C**: $2y^2$ **D**: $6xy^2$ **E**: None of these

---

Question 39

$\frac{3x^{-2}y^2}{6y^{-1}x^3} =$

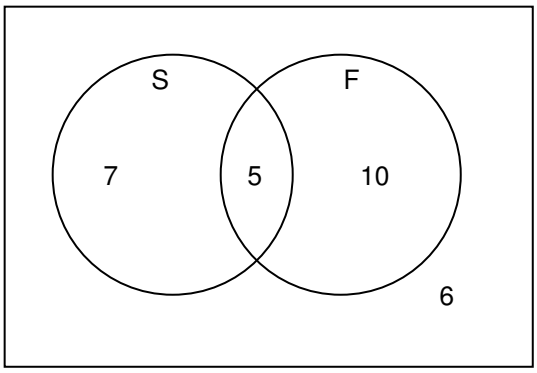
A: $\frac{y^3}{2x^5}$ **B**: $\frac{y}{2x}$ **C**: $\frac{y}{3x}$ **D**: $\frac{3y}{x^5}$ **E** $\frac{2y^3}{x}$

Question 40

Which is not the same as $32^{3/5}$?

A: $\left(32^{1/5}\right)^3$ **B**: $\left(32^3\right)^{1/5}$ **C**: $\left(\sqrt[5]{32}\right)^3$ **D**: $\left(32^{1/3}\right)^5$ **E**: $\sqrt[5]{32^3}$

Use the Venn diagram to answer questions 41, 42 and 43



The diagram shows a class of music students and instruments they learn.

S = Saxophone
F = Flute

Question 41

What is the total number of students in the class?

A: 33 **B**: 22 **C**: 17 **D**: 23 **E**: 28

Question 42

How many students learnt neither saxophone nor flute?

A: 5 **B**: 6 **C**: 7 **D**: 10 **E**: None of these

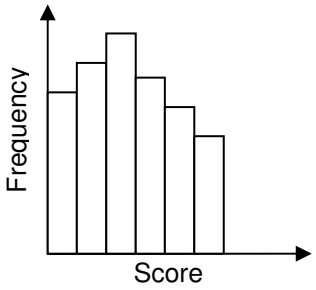
Question 43

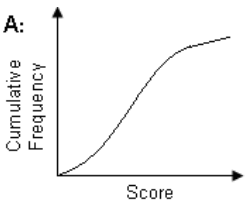
How many students learnt just the saxophone or the flute?

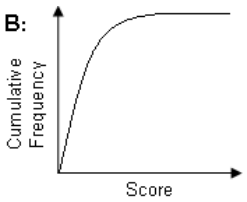
A: 12 **B**: 22 **C**: 17 **D**: 15 **E**: None of these

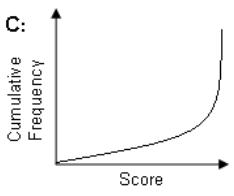
Question 44

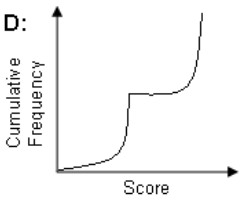
Which is the best cumulative frequency graph for the histogram?

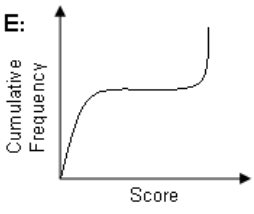












Question 45

Jack's Dad invested some money and for every $12 he invested he got a total of $15 back. If Jack's Dad invested $300, how much in total did he get back?

A: $225 **B**: $525 **C**: $480 **D**: $375 **E**: None of these

Question 46

Expand the brackets and simplify

$\left(2\sqrt{5}-\sqrt{2}\right)^2$

A: $4\sqrt{5}+2\sqrt{2}$ **B**: $12-4\sqrt{10}$ **C**: $8-4\sqrt{10}$ **D**: $2\sqrt{10}-2$ **E**: None of these

Question 47

Rationalise and simplify $\frac{4\sqrt{5}}{\sqrt{3}}$

A: $\sqrt{2}$ **B**: $3\sqrt{6}$ **C**: $\sqrt{6}$ **D**: $\frac{\sqrt{6}}{3}$ **E**: None of these

Question 48

If $x = 1/2$ $y = 2/3$ and $z = 3/4$ evaluate

$x \div y + z$

A: $1\frac{1}{2}$ **B**: $\frac{3}{7}$ **C**: $1\frac{1}{12}$ **D**: $\frac{3}{4}$ **E**: None of these

Question 49

Expand and simplify

$(3a-5b)(3a+5b)$

A: $9a-25b$ **B**: $9a+25b$ **C**: $9a^2+25b^2$ **D**: $9a^2-25b^2$ **E**: None of these

Question 50

Factorise and simplify

$3a^2+3a-18$

A: $(a+3)(a-2)$ **B**: $3(a-3)(a+2)$ **C**: $3(a-3)(a-2)$ **D**: $3(a+3)(a-2)$ **E**: None of these

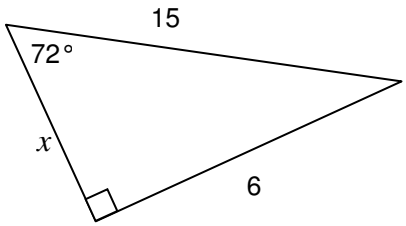
Question 51

Simplify $\frac{x^2-9}{4x-12} \div \frac{x+3}{2}$

A: $\frac{x+3}{4}$ **B**: $\frac{1}{2}$ **C**: $\frac{x+3}{2(x-3)}$ **D**: $\frac{2}{1}$ **E**: None of these

Question 52

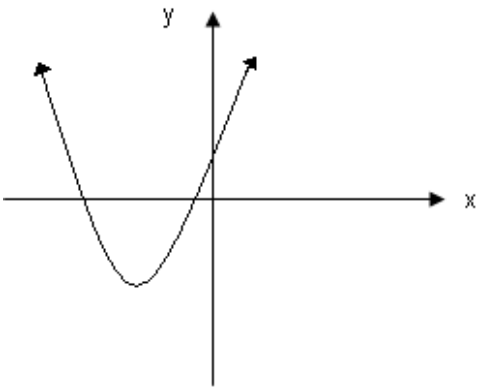
The correct ratio to find x is:



A: 6 Cos 72° **B**: 6 Tan 72° **C**: 15 Sin 18° **D**: 15 Sin 72° **E**: 15 Cos 18°

Question 53

The turning point of the graph could only be:



A: $(-3,3)$ **B**: $(4,-2)$ **C**: $(3,4)$ **D**: $(-2,3)$ **E**: $(-3,-2)$

Question 54

A number x is subtracted from two times its square and the result is 45. An equation to find the value of x would be:

A: $x^2 - 2x = 45$ **B**: $2x - x^2 = 45$ **C**: $2x^2 - x = 45$ **D**: $2x^2 - 2x = 45$ **E**: $x - 2x^2 = 45$

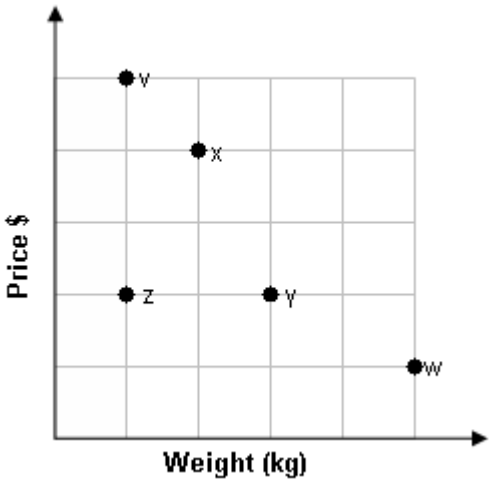
Question 55

Find the points of intersection of the graphs of $y = x^2$ and $y = 3x - 2$.

A: $(1,1)(1,4)$ **B**: $(2,4)(1,1)$ **C**: $(1,-1)(2,4)$ **D**: $(-2,4)(1,1)$ **E**: None of these

Use the graph to answer questions 56, 57 & 58

The graph shows the price paid and weight for bags of sugar bought at different shops.



Question 56

Which shop gave the worst value for money?

A: Shop z **B**: Shop y **C**: Shop x **D**: Shop w **E**: Shop v

---

Question 57

Which two shops charged the same price per kilogram?

A: Shops z & x **B**: Shops z & v **C**: Shops y & z **D**: Shops v & w **E**: Shops x & y

---

Question 58

At which shop would you get three times the amount of sugar for the same price as shop z?

A: Shop v **B**: Shop x **C**: Shop w **D**: Shop y **E**: None of these

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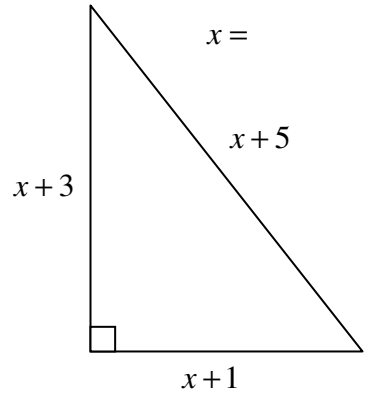
Question 59



A: 4 **B**: 5 **C**: 6 **D**: 3 **E**: None of these

Question 60

Factorise $ab + b^2 - ac - bc$

A: $(b-c)(a-c)$ **B**: $(b+a)(b+c)$ **C**: $(b-c)(a+b)$ **D**: $(b+c)(a-b)$ **E**: $(b-c)(a+c)$

WELL DONE. THIS IS THE END OF THE TEST.

IF YOU STILL HAVE TIME LEFT, PLEASE CHECK OVER YOUR ANSWERS.