

# MATHEMATICS PRACTICE TEST

## PRACTICE QUESTIONS

Here are some practice examples to show you what the questions on the real test are like.

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### Practice Example 1

$$5 + 2 =$$

A: 5

B: 6

C: 7

D: 8

E: None of these

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### Practice Example 2

Which is the largest number?

A: 403

B: 4600

C: 406

D: 4060

E: None of these

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### Practice Example 3

48⑦9

What value does the circled number in the number above represent?

A: 4879

B: 700

C: 70

D: 7

E: None of these

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You will have **30 minutes** to do as many questions as you can.

**NO CALCULATORS PERMITTED FOR THIS TEST.**

**PLEASE DO NOT TURN THIS PAGE UNTIL YOU ARE ASKED TO DO SO.**

**Question 1**

$$-10 + -3 - -4 + 5$$

**A:** 2**B:** - 12**C:** - 4**D:** 16**E:** None of these

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**Question 2**

$$-96 \div -6 \div 8 =$$

**A:** 2**B:** 12**C:** - 12**D:** - 2**E:** None of these

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**Question 3**

Jo bought a used car for \$6000 and paid 15% deposit. How much did he still have to pay?

**A:** \$900**B:** \$5000**C:** \$4500**D:** \$5100**E:** None of these

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**Question 4**

$$5 \times -2 - (8 - 12) + 16 \div -8 =$$

**A:** 6**B:** - 8**C:** - 16**D:** - 6**E:** None of these

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**Question 5**

What is 8% of \$600?

**A:** \$580**B:** \$480**C:** \$48**D:** \$58**E:** None of these

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**Question 6**

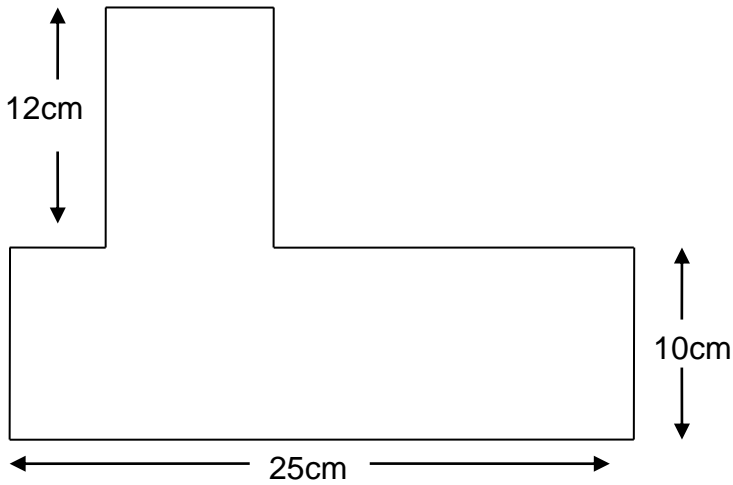
Which is the longest distance?

**A:** 3500cm**B:** 65.5m**C:** 75000mm**D:** 15.5m**E:** 0.1km

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### Question 7

The perimeter of the shape is



A: 47cm

B: 72cm

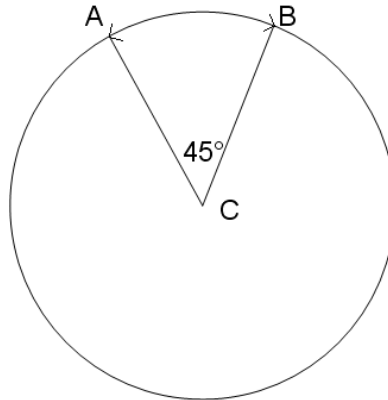
C: 69cm

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  $2\frac{1}{3} : 4\frac{1}{3}$  then  $7 : \square = \square$

**A:** 12

**B:** 13

**C:**  $8\frac{2}{3}$

**D:**  $6\frac{1}{3}$

**E:** None of these

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**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

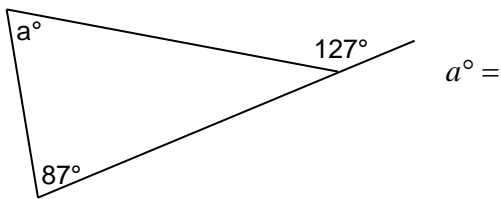
**C:** 45 tonnes

**D:** 75 tonnes

**E:** None of these

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**Question 12**



**A:** 53

**B:** 40

**C:** 93

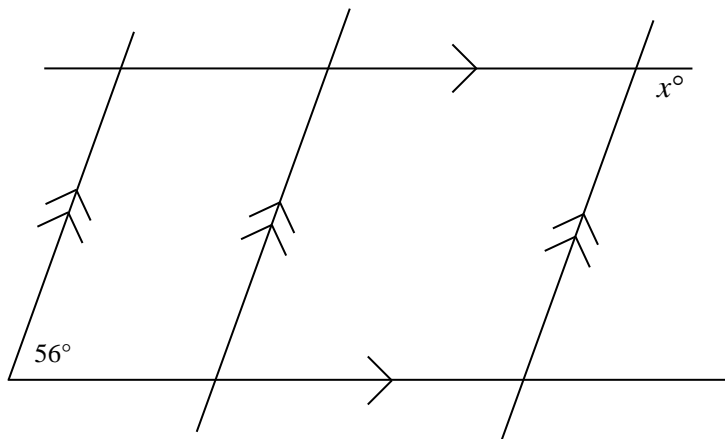
**D:** 146

**E:** None of these

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**Question 13**

$x^\circ =$



**A:** 124

**B:** 304

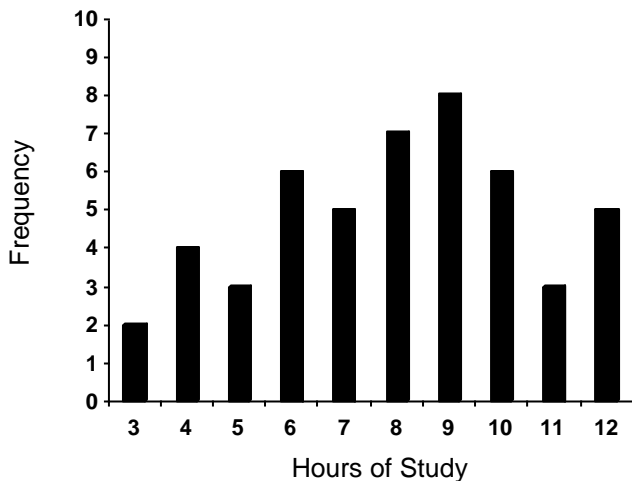
**C:** 54

**D:** 66

**E:** None of these

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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
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**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
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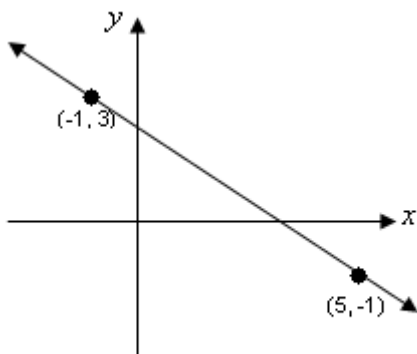
**Question 16**

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

- A:**  $\frac{1}{6}$                       **B:**  $\frac{1}{12}$                       **C:**  $\frac{1}{2}$                       **D:**  $\frac{5}{6}$                       **E:** None of these

**Question 17**

The gradient of the line is

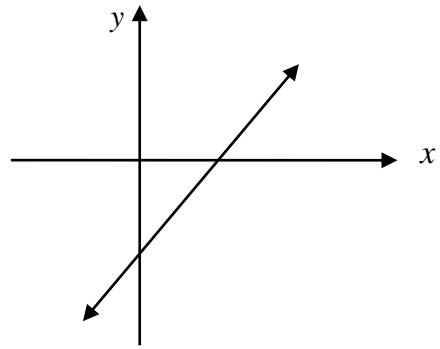


- A:**  $\frac{3}{2}$                       **B:**  $\frac{2}{3}$                       **C:**  $-\frac{2}{3}$                       **D:**  $-\frac{3}{2}$                       **E:** None of these
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**Question 18**

The y intercept of the graph could only be:



**A:**  $(4,0)$

**B:**  $(0,-3)$

**C:**  $(-4,0)$

**D:**  $(-3,0)$

**E:**  $(0,3)$ 

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**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:**  $-5 \leq x < 6$ 

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**Question 20**

Expand and simplify

$$-6(2x - 3) - 11$$

**A:**  $-12x - 29$

**B:**  $7 - 12x$

**C:**  $12x - 7$

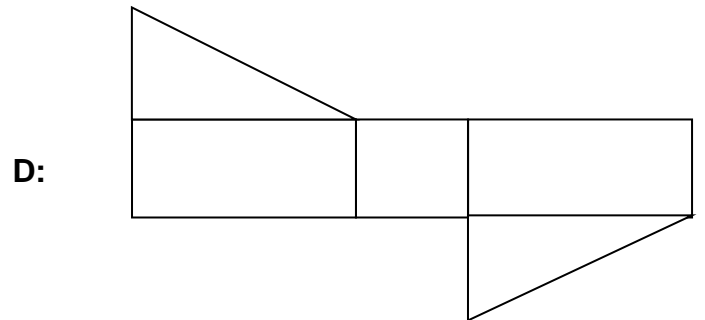
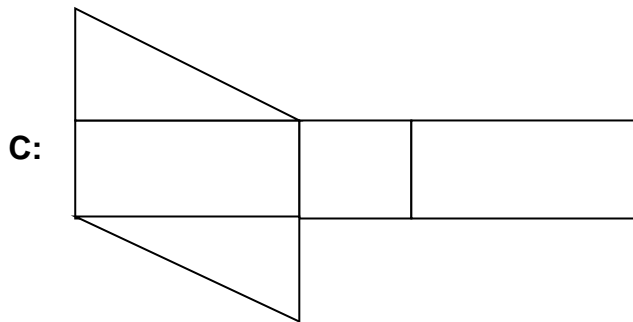
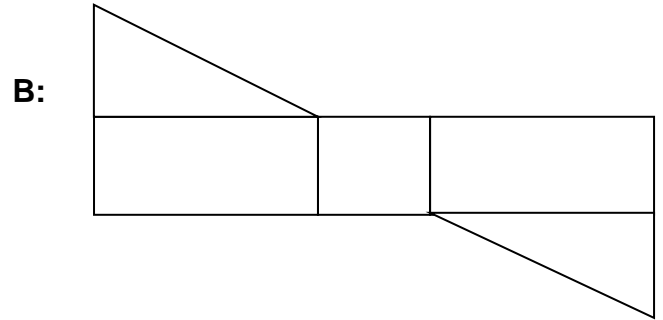
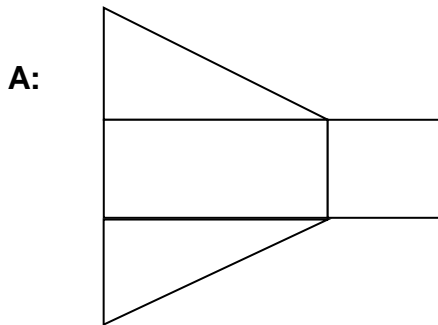
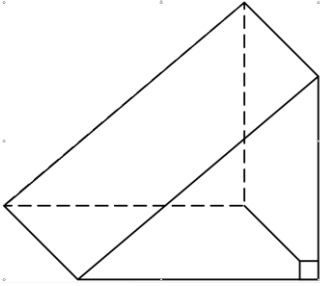
**D:**  $7 + 12x$

**E:** None of these

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**Question 21**

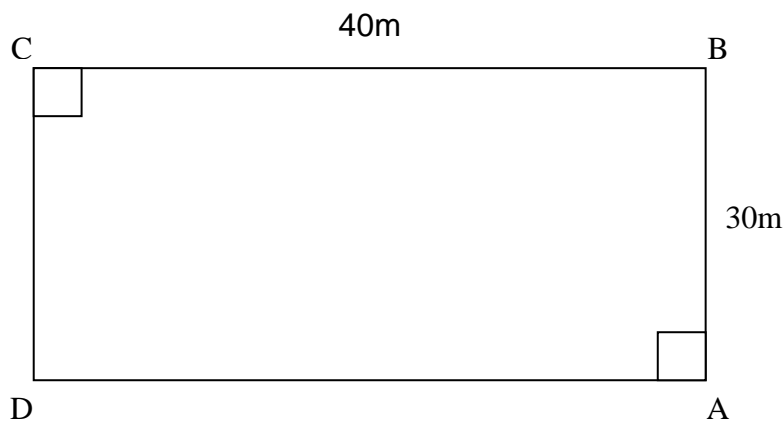
Which option would make this solid?



**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

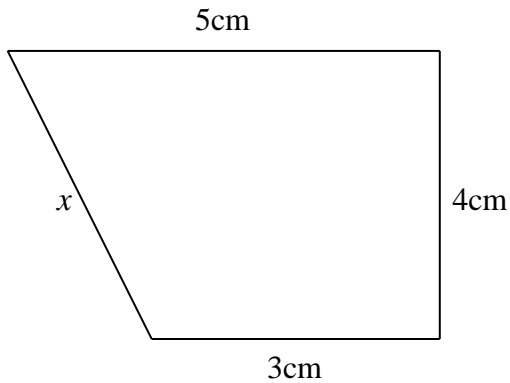
**Question 23**Simplify the surd  $3\sqrt{56}$  completely

**A:**  $12\sqrt{14}$

**B:**  $5\sqrt{14}$

**C:**  $6\sqrt{14}$

**D:**  $6\sqrt{28}$

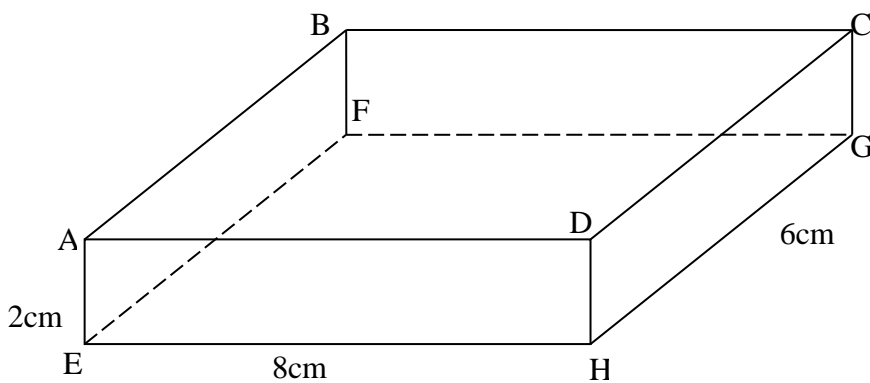
**E:** None of these**Question 24**The length of  $x$  equals

**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  $\frac{2}{7}$ . What is the new value of the car?

**A:** \$2200

**B:** \$5500

**C:** \$9900

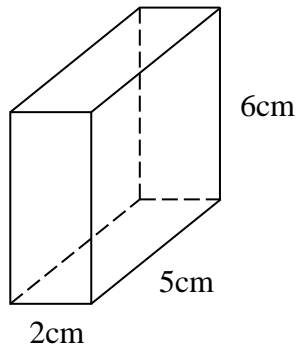
**D:** \$4400

**E:** None of these



**Question 27**

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



- 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:  $x > 1\frac{4}{5}$
- E: None of these

**Question 31**

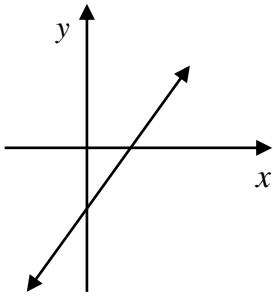
Solve for  $x$

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

- A:  $x = 1\frac{11}{18}$
- B:  $x = 5\frac{1}{2}$
- C:  $x = -5\frac{1}{2}$
- D:  $x = 14\frac{1}{2}$
- E:  $x = -14\frac{1}{2}$

**Question 32**

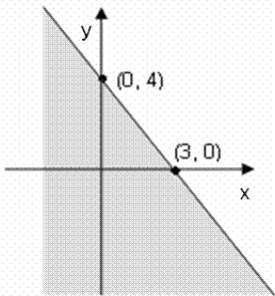
Which equation could only be the equation of the graph?



- A:**  $y = 3x + 2$
- B:**  $y = -3x - 2$
- C:**  $y = 3x - 2$
- D:**  $y = -3 + 2$
- E:**  $y = -x - 2$

**Question 33**

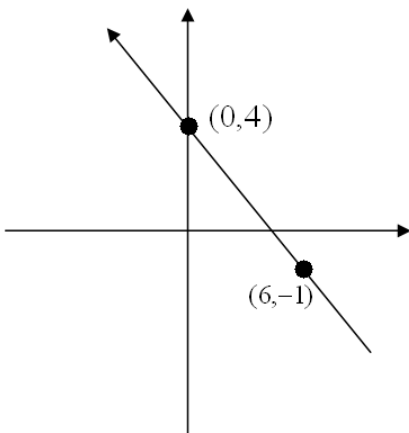
Which set of coordinates lie outside the shaded area?



- A:**  $(0, 0)$
- B:**  $(-1, -6)$
- C:**  $(1, -50)$
- D:**  $(1, 1)$
- E:**  $(4, 1)$

**Question 34**

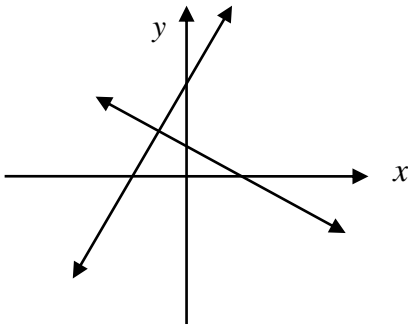
The equation of this graph is:



- 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**

$$(3^{\circ}y)^2 \times 2(xy)^{\circ}$$

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:  $(32^{1/5})^3$

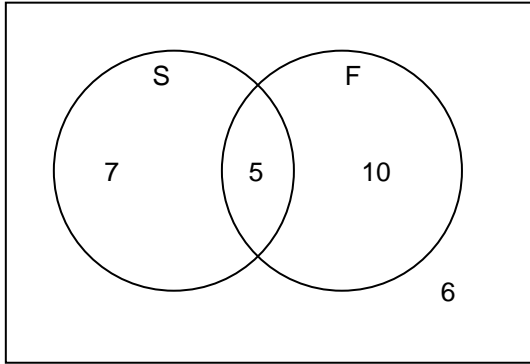
B:  $(32^3)^{1/5}$

C:  $(\sqrt[5]{32})^3$

D:  $(32^{1/3})^5$

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

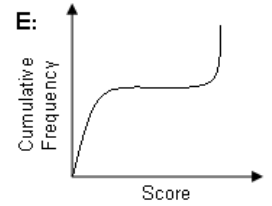
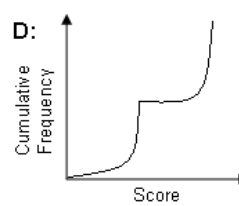
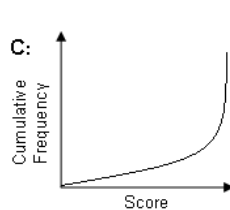
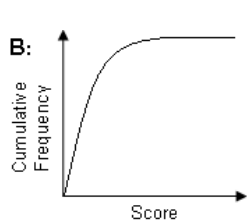
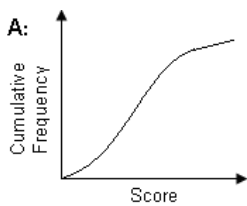
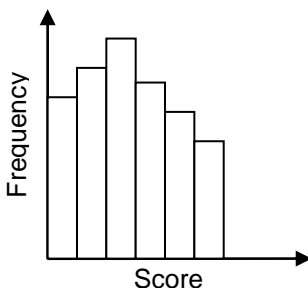
**Question 43**

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

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**Question 46**

Expand the brackets and simplify

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

**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

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**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

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**Question 48**If  $x = \frac{1}{2}$ ,  $y = \frac{2}{3}$  and  $z = \frac{3}{4}$  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

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**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

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**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

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**Question 51**Simplify  $\frac{x^2 - 9}{4x - 12} \div \frac{x + 3}{2}$ 

**A:**  $\frac{x + 3}{4}$

**B:**  $\frac{1}{2}$

**C:**  $\frac{x + 3}{2(x - 3)}$

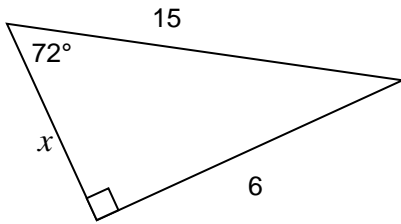
**D:**  $\frac{2}{1}$

**E:** None of these

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**Question 52**

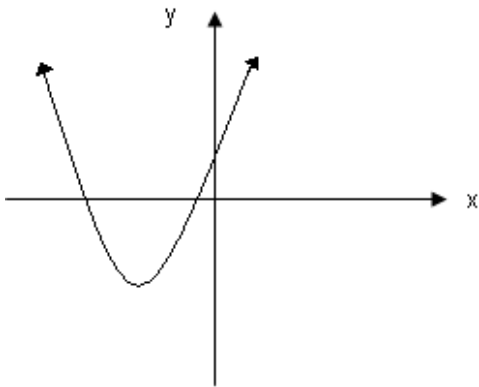
The correct ratio to find  $x$  is:



- A:**  $6 \cos 72^\circ$       **B:**  $6 \tan 72^\circ$       **C:**  $15 \sin 18^\circ$       **D:**  $15 \sin 72^\circ$       **E:**  $15 \cos 18^\circ$
- 

**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:**  $x - 2x^2 = 45$
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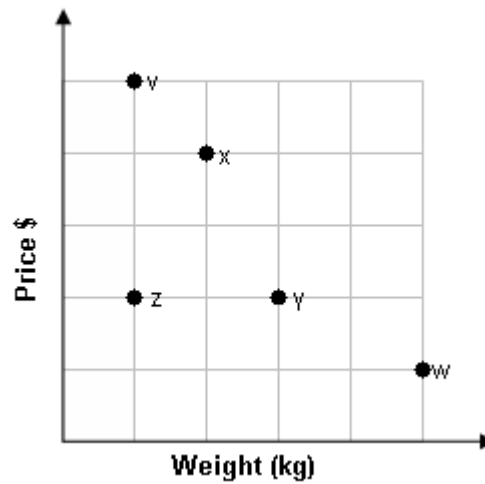
**Question 55**

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?

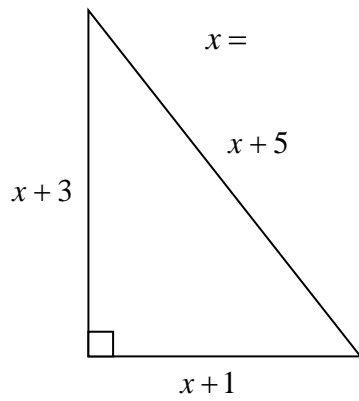
- A:** Shops z & x      **B:** Shops z & v      **C:** Shops y & z      **D:** Shops v & w      **E:** Shops x & y
- 

**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
-

**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:**  $(b-c)(a+c)$

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**WELL DONE. THIS IS THE END OF THE TEST.**

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