

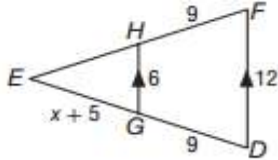
# FINAL EXAM PRACTICE PROBLEMS

## integrated math 2

1 Factor  $9m^2 - 16$

- A.  $(3m - 4)(3m - 4)$       C.  $(3m - 4)(3m + 4)$   
 B.  $(3m + 4)(3m + 4)$       D. prime

2 Find EG.

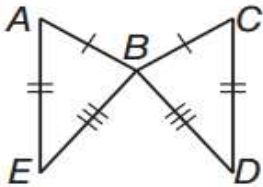


- A.  $\frac{1}{2}$   
 B. 4  
 C. 5.5  
 D. 9

3 Find the exact solutions to  $2x^2 + 10x + 7 = 0$  by using the Quadratic Formula.

- A.  $\frac{-10 \pm \sqrt{11}}{2}$       C.  $\frac{-5 \pm \sqrt{11}}{2}$   
 B.  $-10 \pm \sqrt{11}$       D.  $-5 \pm \sqrt{11}$

4 What are the congruent triangles in the diagram?



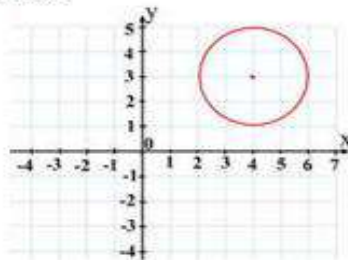
- A.  $\triangle ABC \cong \triangle EBD$   
 B.  $\triangle ABE \cong \triangle CBD$   
 C.  $\triangle AEB \cong \triangle CBD$   
 D.  $\triangle ABE \cong \triangle CDB$

5 Find the measure of each exterior angle of a regular 40-gon.

- A. 4.5      C. 360  
 B. 9      D. 6840

6 Find the equation of the circle.

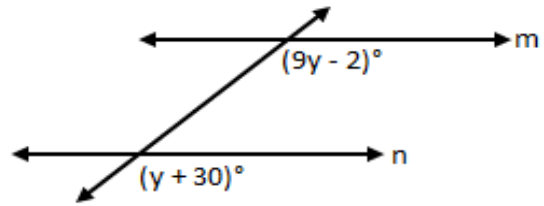
- A.  $(x - 4)^2 + (y - 3)^2 = 4$   
 B.  $(x + 4)^2 + (y + 3)^2 = 4$   
 C.  $(x - 4)^2 + (y - 3)^2 = 2$   
 D.  $(x + 4)^2 + (y + 3)^2 = 2$



7 A ramp is leaned against the wall making a  $15^\circ$  angle with the ground. The ramp hits the wall 4 feet above the ground. Approximately how long is the ramp?

- A. 1 foot      C. 4.1 feet  
 B. 15.5 feet      D. 14.9 feet

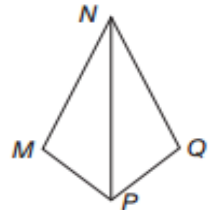
8 If line m and line n are parallel, find y.



- A. 2.8      C. 4  
 B. 3.2      D. 15.2

9 Quadrilateral MNQP is made of two congruent triangles. NP bisects  $\angle N$  and  $\angle P$ . In the quadrilateral,  $m\angle N = 20$  and  $m\angle P = 80$ . What is the measure of  $m\angle M$ ?

- A. 80  
 B. 90  
 C. 100  
 D. 130



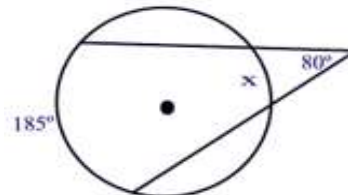
10 Find all the zeros of the function

$f(x) = x^3 - 5x^2 + 9x - 45$   
 A. -3, 3, and 5  
 B. -5, 3, and 5  
 C. -3i, 3i, and -5  
 D. -3i, 3i, and 5

11 The measure of an exterior angle of a regular polygon is 90. How many sides does the polygon have?

- A. 4      C. 360  
 B. 9      D. 15840

12 Find the value of arc x.

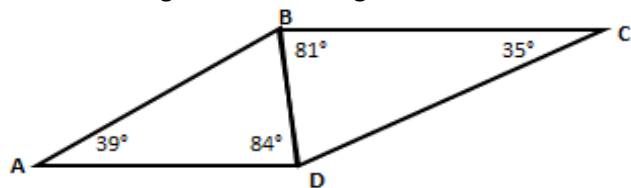


- A. 80  
 B. 45  
 C. 25  
 D. 105

13  $\angle 1$  and  $\angle 2$  are vertical angles. If  $m\angle 1 = 7x + 12$  and  $m\angle 2 = 3x + 20$ , find the measure of  $\angle 1$ .

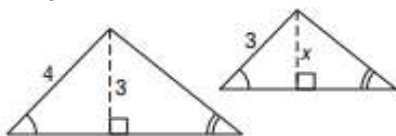
- A. 2      C. 26  
 B. 8      D. 68

14 Which line segment is the longest?



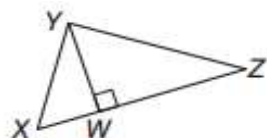
- A. AD
- B. CD
- C. BC
- D. AB

15 Find  $x$ .



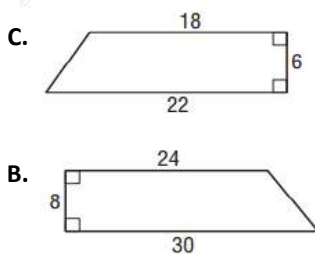
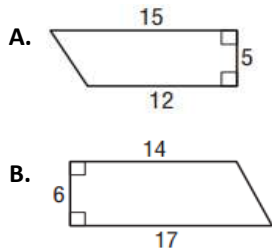
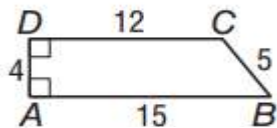
- A. 2
- B. 2.25
- C. 3
- D. 4

16 What is the relationship between the lengths of  $YW$  and  $YX$ ?



- A.  $YW = YX$
- B.  $YW < YX$
- C.  $YW > YX$
- D. cannot tell

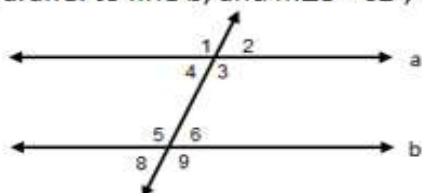
17 Find the polygon that is similar to ABCD.



18 Which value of  $c$  makes  $2x^2 + 8x + c$  contain a perfect square trinomial?

- A. 2
- B. 8
- C. 16
- D. 64

19 If line  $a$  is parallel to line  $b$ , and  $m\angle 8 = 62^\circ$ , what is  $m\angle 1$ ?

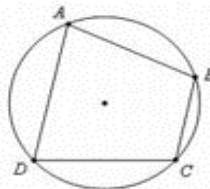


- A.  $28^\circ$
- B.  $62^\circ$
- C.  $118^\circ$
- D.  $180^\circ$

20 A 6-foot tall fence post cast a 2.5-foot shadow. At the same, a nearby clock tower cast a 35-foot shadow. What is the height of the tower?

- A. 37.5 ft
- B. 71 ft
- C. 78 ft
- D. 84 ft

21 If the  $m\angle A = 75^\circ$ , find  $m\angle C$ ?



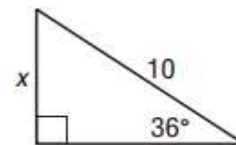
- A.  $105^\circ$
- B.  $25^\circ$
- C.  $15^\circ$
- D.  $285^\circ$

22 If  $\triangle ABC$  is an isosceles triangle, with  $\angle B$  as the vertex angle and  $m\angle B = 72$ , what is the  $m\angle A$ ?

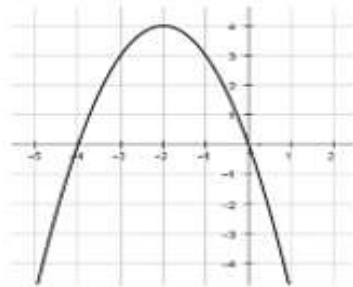
- A. 18
- B. 54
- C. 72
- D. 108

23 Find  $x$  to the nearest tenth.

- A. 5.8
- B. 5.9
- C. 72
- D. 108



24 Determine the roots of the equation.



roots:

25 Given that  $\triangle JKL \cong \triangle PQR$ , which of the following must be true?

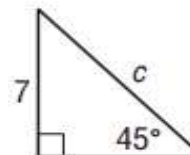
- A.  $KL \cong PQ$
- B.  $JL \cong PR$
- C.  $\angle K \cong \angle R$
- D.  $\angle L \cong \angle P$

26 Which equation is equivalent to  $4x^2 + 24x - 16 = 0$ ?

- A.  $(x + 3)^2 = 13$
- B.  $(x + 3)^2 = 4$
- C.  $(x + 9)^2 = 4$
- D.  $(2x + 6)^2 = 52$

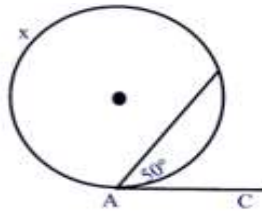
27 Find  $c$ .

- A. 7
- B.  $7\sqrt{2}$
- C.  $7\sqrt{3}$
- D. 14



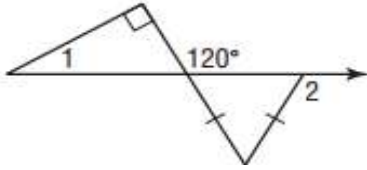
28 Given tangent AC to the circle shown, find the measure of arc labeled x.

- A. 50  
B. 130  
C. 260  
D. 310



29 Find the  $m\angle 1$ .

- A. 30  
B. 60  
C. 90  
D. 120

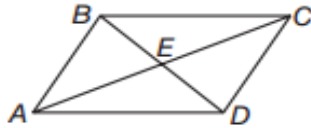


30 Simplify  $\sqrt{60}$ .

- A. 30  
B.  $4\sqrt{15}$   
C.  $2\sqrt{15}$   
D.  $10\sqrt{3}$

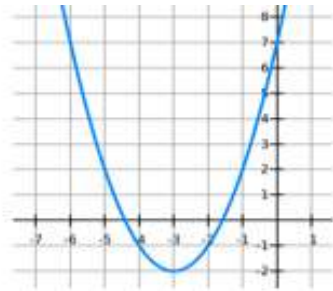
31 Given  $BE = 7x - 8$  and  $ED = x + 10$  in parallelogram ABCD, find BE.

- A. 3  
B. 13  
C. 23  
D. 26



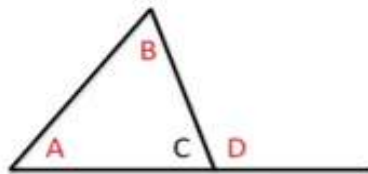
32 Identify the quadratic function graphed.

- A.  $y = x^2 - 6x + 7$   
B.  $y = x^2 + 6x + 7$   
C.  $y = -x^2 - 6x + 1$   
D.  $y = x^2 + 6x + 1$



33 If  $m\angle A = 35^\circ$  and  $m\angle B = 50^\circ$ , find the  $m\angle D$ .

- A. 5  
B. 85  
C. 90  
D. 95



34 Which of the following are possible measures for vertical angles A and B?

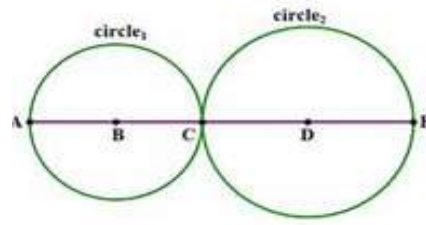
- A.  $m\angle A = 75$  and  $m\angle B = 15$   
B.  $m\angle A = 87$  and  $m\angle B = 93$   
C.  $m\angle A = 10$  and  $m\angle B = 90$   
D.  $m\angle A = 115$  and  $m\angle B = 115$

35 Which of the following sets of numbers can be the lengths of the sides of a triangle?

- A. 12, 9, 2  
B. 11, 12, 23  
C. 2, 3, 4  
D.  $\sqrt{3}$ ,  $\sqrt{5}$ ,  $\sqrt{18}$

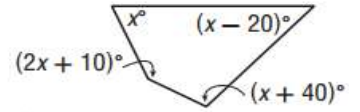
36 The radius of  $\odot B$  is 10 meters and the circumference of  $\odot D$  is  $50\pi \text{ m}^2$ . Find AE.

- A. 20.5 meters  
B. 35 meters  
C. 70 meters  
D. 120 meters

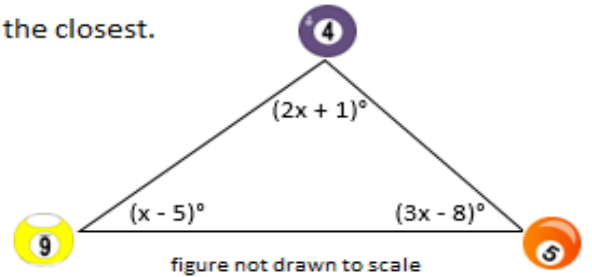


37 Find x.

- A. 30  
B. 66  
C. 102  
D. 138



38 Three pool balls are left on the table. Use the expressions to determine which two balls are the closest.



39 By the Zero Product Property, if  $(6x + 5)(x - 7) = 0$ , then \_\_\_\_\_.

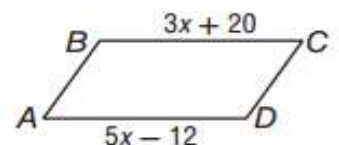
- A.  $x = -5$  or  $x = 7$   
B.  $x = 5$  or  $x = -7$   
C.  $x = \frac{5}{6}$  or  $x = -7$   
D.  $x = -\frac{5}{6}$  or  $x = 7$

40 MN bisects  $\angle LMO$ . Which statement must be true?

- A.  $m\angle LMN = m\angle OMN$   
B.  $m\angle LMO = m\angle OMN$   
C.  $m\angle LMN = m\angle OML$   
D.  $m\angle LMO = m\angle ONM$

41 For the parallelogram ABCD, find the value of x.

- A. 4  
B. 10.25  
C. 16  
D. 21.5

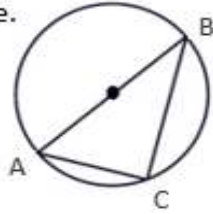


42 Find  $(2n - 3)(n + 4)$

- A.  $3n + 1$   
B.  $2n^2 + 5n - 12$   
C.  $2n^2 - 12$   
D.  $2n^2 + 11n + 1$

- 43 If  $\triangle ABC$  is a  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle, with  $m\angle A = 60^\circ$  and chord  $BC = 7\sqrt{3}$ , find the circumference.

- A. 43.98  
B. 76.18  
C. 87.96  
D. 153.94

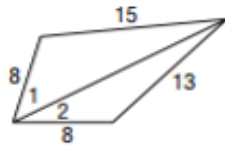


- 44 Find  $(\sqrt{7} - \sqrt{10})(\sqrt{5} - \sqrt{14})$ .

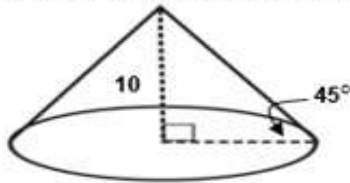
- A.  $-\sqrt{35}$   
B.  $2\sqrt{2} - \sqrt{35}$   
C.  $12\sqrt{2} + 3\sqrt{35}$   
D.  $2\sqrt{3} + \sqrt{21} - \sqrt{15} - 2\sqrt{6}$

- 45 What is the relationship between  $m\angle 1$  and  $m\angle 2$ ?

- A.  $m\angle 1 = m\angle 2$   
B.  $m\angle 1 < m\angle 2$   
C.  $m\angle 1 > m\angle 2$   
D. cannot tell



- 46 Find the volume of the cone.



- A. 628.3  
B. 1047.2  
C. 2094.4  
D. 3141.6

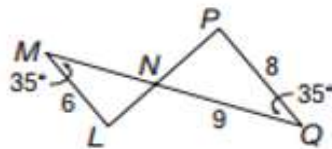
- 47 Which of the following is the sum of both solutions of the equation  $x^2 + 4x - 12 = 0$ ?

- A. 7  
B. 8  
C. -4  
D. 4

- 48 Find  $MN$ .

- A. 5.33  
B. 6.75

- C. 7  
D. 12

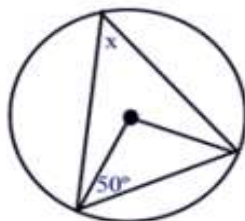


- 49 Find  $(5x - 2)^2$ .

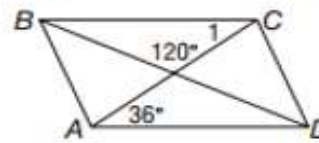
- A.  $25x^2 - 4$   
B.  $25x^2 + 4$   
C.  $25x^2 - 20x + 4$   
D.  $25x^2 - 20x - 4$

- 50 Given a circle with the center indicated. Find  $x$ .

- A. 100  
B. 80  
C. 50  
D. 40



- 51 Find the  $m\angle 1$  in the parallelogram below.



- A. 60  
B. 54  
C. 36  
D. 18

- 52 Solve  $8^{x+2} = 32^{2x+4}$

- A. -2  
B. -1  
C. 0  
D. 1

- 53 Find  $(2a - 5) - (3a + 1)$

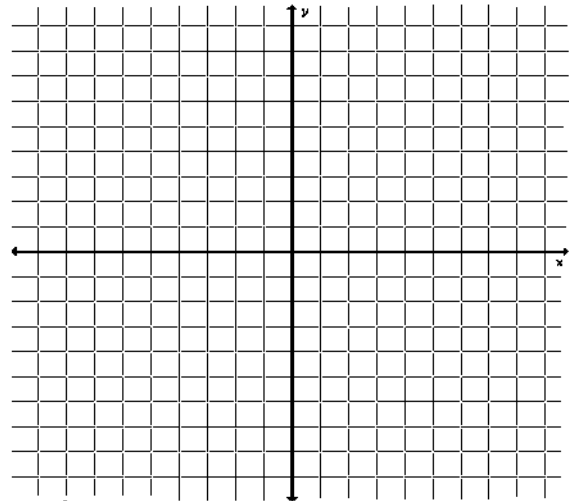
- A.  $5a + 6$   
B.  $a - 4$   
C.  $-a - 6$   
D.  $6a^2 + 17a - 5$

- 54 Solve  $(x^2 - 16)(x^2 + 1) = 0$

- A. -16, -1, 1, 16  
B. -4, -1, 4, 1  
C. 1, 4,  $i$ ,  $4i$   
D. -4, 4,  $i$ ,  $-i$

- 55 Graph the quadratic function  $y = x^2 + 2x - 8$ .

Find the vertex, y-intercept and roots. Verify the roots by one of the methods you know (factoring, completing the square or quadratic formula).



vertex:

Verify roots (show work)

y-intercept:

roots: